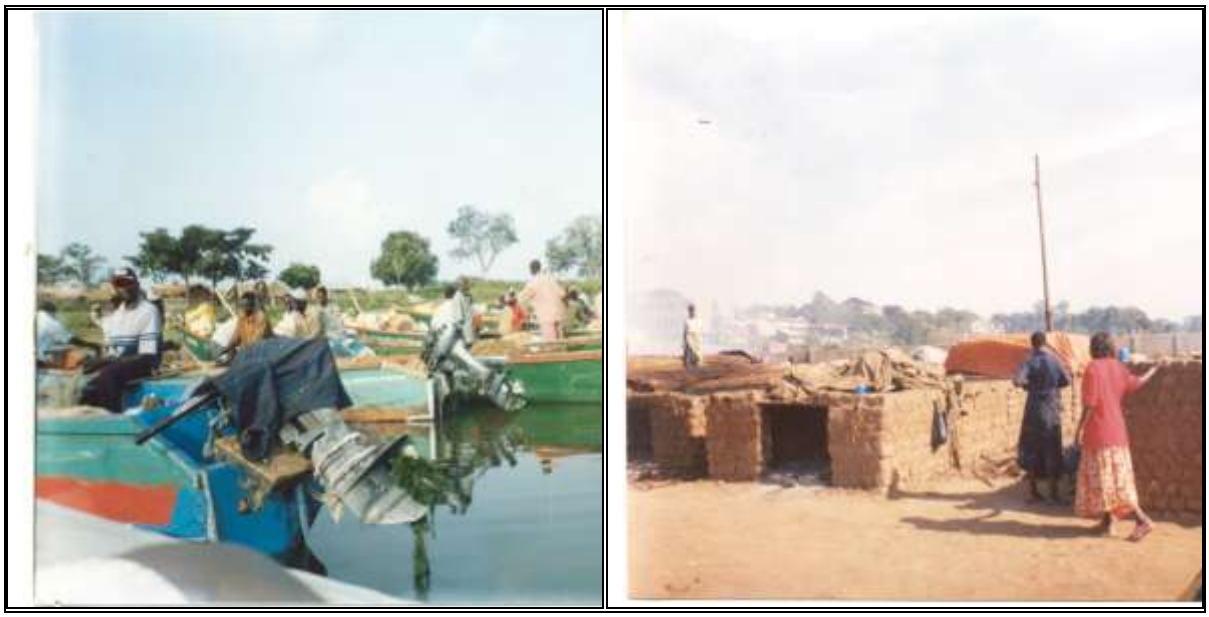
IFMP Socio-economics Series 1

SOCIO-ECONOMIC BASELINE SURVEY OF THE FISHING COMMUNITIES OF LAKE VICTORIA, UGANDA



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Acronyms

BMU	Beach Management Unit
CAS	Catch Assessment Survey
CBS	Central Broadcasting Service
CSO	Civil Society Organisation
EC	European Commission
FAL	Functional Adult Literacy
FMP	Fisheries Management Plan
HIV	Human Immune Virus
IFMP	Implementation of Fisheries Management Plan
LTTA	Long Term Technical Assistant
LVEMP	Lake Victoria Environmental management Project
LVFO	Lake Victoria Fisheries Organization
LVFRP	Lake Victoria Fisheries Research Project
NAFIRRI	National Fisheries Resources Research Institute
NARO	National Agricultural Research Organization
NGOs	Non Governmental Organizations
NP-M	Nile Perch Mixed
NP-O	Nile Perch Only
SPSS	Statistical Package for Social Scientist
WG	Working Group

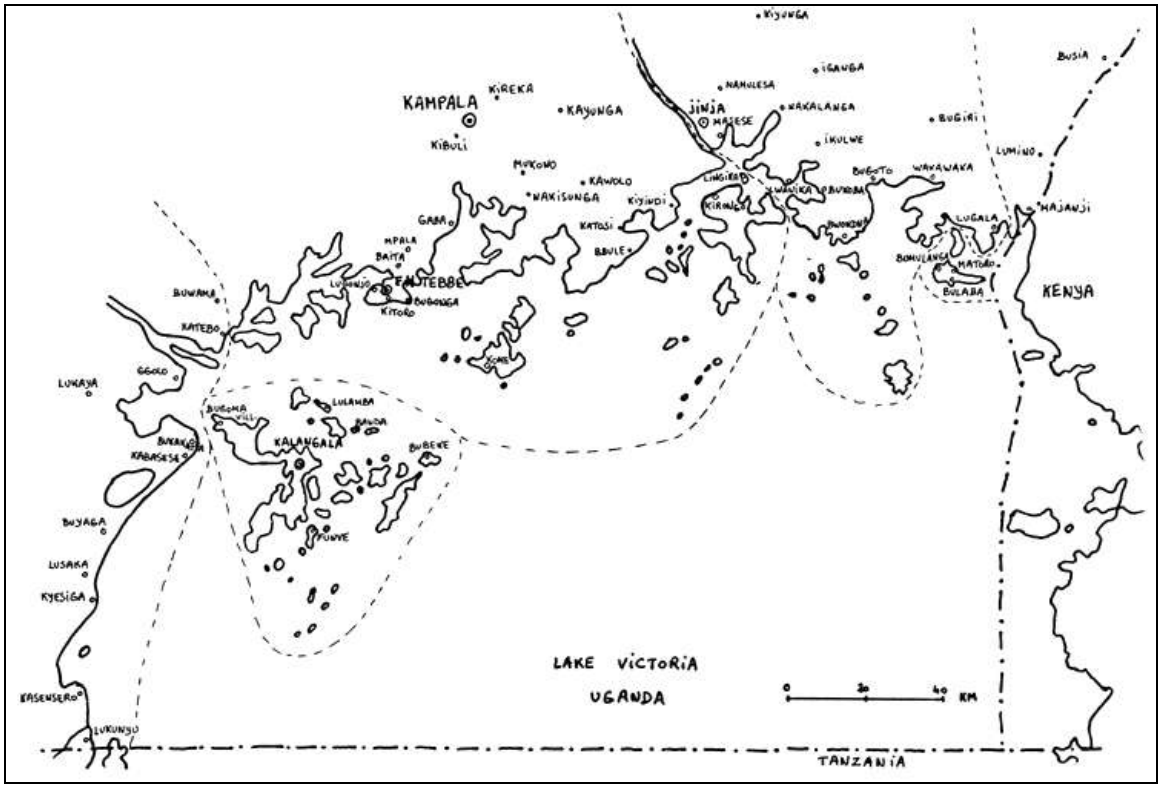

Figure 1: Sketch Map of Lake Victoria, Uganda

EXECUTIVE SUMMARY

Purpose

1. The purpose of the Socio-economic Baseline Survey of the Fishing Communities was to provide information on the fish landing beaches, people involved in fisheries, their livelihood activities and facilities available to them.

Beach level data

2. Beaches on Lake Victoria could be distinguished between Nile perch, tilapia, mukene and mixed beaches.
3. There were people employed in repairing or making fishing boats and gear at most of beaches surveyed. There were more people making a living from processing and trading fish at mukene beaches than at other beaches.
4. Nile perch was landed by fishers and by collector boats and mainly sold fresh to factories at most beach types, except at mukene beaches. Smoking was the most common method for processing Nile perch at most beaches. Salting and sun-drying of Nile perch was practiced on limited scale at mixed beaches.
5. Tilapia was landed by fishers at most beaches but also by collector boats at a few. Smoking was the main processing method for tilapia but the fish was also salted and sun-dried.
6. Mukene was fished and landed within restricted beaches and mostly sun-dried before sale. Different fish products were sold in different units, making comparison of prices difficult.
7. Access to social facilities, namely clinics, dispensaries, hospitals, primary and secondary schools and community halls, varied as these were located either in the same village, at the Sub-county or elsewhere in the District.

Characteristics of stakeholders

8. Fishers on Lake Victoria came from different tribes but the majority were the Baganda, followed by the Basoga and the Samia.
9. Most fishers were born in districts other than those where they operated.
10. Men highly dominated among boat owners, crew members and in other related activities but only to a lesser extent among processors and traders.

11. The majority of people in the fisheries were married. However, there was a large proportion of single men, especially among the crew members. There were also significant proportions of separated and widowed women as well as men at the beaches.

12. The largest proportions of fishers were of the age group of 19-29 years, followed by 30-39 years. Crew members represented the youngest group, with most of them between the age brackets of 19-39 and some at 18 years and below.

13. Most fishers did not complete primary education and quite a few had no education completely. Considering gender aspects, women were less educated, compared to men.

14. Few children from the beaches went to nursery schools. Most parents had children in primary school but only a few had them in secondary schools and tertiary institutions.

15. Children dropped out of school continuously through the primary and secondary education.

Housing characteristics

16. The majority of the people owned houses, most of whom owned semi-permanent houses, followed by temporary houses and lastly permanent houses. Those who did not own houses slept in rented houses, with friends or in the open.

Asset ownership

17. Many fishers reported owning land, which they used to construct houses and grow food crops.

18. Very few of them owned fish ponds, which were not even put to use. None of the fishers practiced fish farming. The low level of aquaculture was attributed to the lack of skills, limited access to pond resources and the large capital outlays needed to start pond fish farming.

19. Only a few of the people owned a cow. The low level of animal rearing was attributed to the concentration on fishing and absence of grazing land.

20. Bicycles were the main means of transport owned by many people, particularly boat owners and traders.

21. Generally, fishers did not own vehicles because of the poor access roads and poverty.

22. Fishers saved only small proportions of their daily earnings. For those who did, they did not save their earnings in secure and profitable ways. Very few had bank accounts, which they maintained outside the districts.

Livelihood, health and consumption status

23. Many of the people relied on incomes from boats and gears throughout the year. Fish trading and processing also contributed significantly to the livelihoods of a number of households.

24. Net making and repair was an activity practiced by few fishers. Boat building and repair was practiced by few stakeholders and only during a few months in the year. Some of the people relied on incomes from trading in food commodities, which they supplied to fishing communities.

25. The health of fishers was affected by malaria, bilharzhia, HIV/AIDS and diarrhea, among other diseases. Most fishers used the lake as their main source of drinking water.

26. Most of the people reported that they got enough food for their households, having two meals a day. Tilapia was the most preferred fish as sauce in fresh form, followed by the smoked form.

Information, communication and outreach

27. Most of the people listened to the radio for information, mainly tuning to Radio CBS. The majority, however, did not read newspapers at all.

Fisheries management

28. Most of the beaches had resident or visiting fisheries staff. However, some fishers reported that their beaches were never visited by the staff.

29. The most common information received from staff was on fishing gears, methods and minimum size of fish to be harvested. The least information received was on fish business management.

30. Majority of the people were not members of any fishermen or traders organization. Some of the stakeholders did not understand the roles of the BMUs. Many of them were not even members of the BMUs as reported at the time of survey.

Expenditures of stakeholders

31. The highest expenditure priorities among the fisheries stakeholders were food, education and health. Contrary to the general belief, the data revealed that leisure and clothing were not considered high priorities among them.

32. Investments were also not a priority, due to insufficiency of the earnings to meet existing needs.

Boat owners and rent-ins

33. The majority of the boat owners owned one boat each, mostly hand paddled sesse targeting tilapia. Nets and hooks were the most commonly owned fishing gears.

34. The choice of boats and gears was based mainly on skill requirements, costs and the risks involved with them.

Fishing crew (*barias*)

35. Most of the fishing crew worked on ssesse hand propelled boats targeting Nile perch and were paid under a share system. They often change boats, in search for better earnings, particularly during lean fishing seasons.

Fish processors and traders

36. Most processors were involved in smoking, for which they owned smoking kilns and targeted Nile perch.

37. Most traders dealt in fresh Nile perch and tilapia, followed by smoked fish. The quantities of fish traded varied significantly between categories of traders and between low and high seasons.

Training received

38. Very few respondents had ever received training in relation to their business. Those who received did so in the areas of quality control and fish processing.

Recommendations

39. In view of the importance of the socio-economic indicators for fisheries management and development planning, it is recommended that regular monitoring surveys be carried out bi-annually to up-date the information on them.

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1. OVERVIEW OF RESEARCH

Introduction

The Socio-economic Baseline Survey of the Fishing Communities of Lake Victoria was one of the main studies carried out under the programme of the Socio-economic Research and Monitoring Working Group on Lake Victoria. The programme is aimed at monitoring changes in socio-economic conditions of communities around the lake and how the management regime affects such conditions.

Baseline information on the socio-economic status of the primary fishery stakeholders, namely fishers, boat owners, artisanal processors and traders, is essential for planning, for any subsequent periodic evaluations of the changes and for impact assessments.

The collection of socio-economic baseline data is a valuable resource for all future monitoring and *ad hoc* research on the Lake, providing initial estimates of important parameters that can assist in improving sampling designs. Of particular value is a clearer understanding of the demographic profile of households/fishers and their residency status at landing sites and the types of fishing activities undertaken by fishers during the year.

Background

Lake Victoria fisheries is regarded as extremely important for the riparian countries and specifically to Uganda. It has a productive fishery with estimated annual catches of 120,000 metric tonnes, valued at US$ 300m with about US$ 100m in exports annually from some 481 beaches on the Ugandan side of the lake, from where fishery activities are planned and carried out. Some 24,148 fishing boats operate from these beaches, with estimated 54,148 fishers involved as boat owners, chatterers and crew (Frame survey 2006) while close to 1 million are involved in the tertiary and other fishery related activities in the country.

The fisheries provide high protein food, employment, income and clean water. The lake originally had a high fish species diversity of over 500 endemic fish species of importance, of which now only three are of commercial significance, namely the Nile perch, Nile tilapia and mukene. The lake is an avenue for transport, recreation, a source of power and a moderator of regional climate.

In 2002, the European Union (EC) provided €29.9 million to support the Implementation of the Fisheries Management Plan Project (IFMP), from April 2003 to

August 2008. The overall development objective of the project is "to contribute to the sustainable economic growth, resource use and development in the Lake Victoria Basin". The project purpose is "to assist the three riparian countries constituting the LVFO to implement fisheries management measures in line with the approved Fisheries Management Plan (FMP) and the LVFO Strategic Vision 1999–2015". Socio-economic research is an important component of the management plan, contributing to the LVFO Strategic Vision.

A review of socio-economic research conducted prior to the IFMP is provided by "Report on the status of socio-economic research and monitoring on Lake Victoria" (Medard, Odongkara and Abila, 2004). The document briefly reviews the research conducted under LVEMP and LVFRP, and other project support, building on the 1998 "Technical Report on Lake Victoria Wider Socio-Economic program" (LVEMP, 1998).

Socio-economic research on Lake Victoria has, in the past, been supported by several projects. In the last ten years, project support has principally come from the World Bank funded Lake Victoria Environment Management Project (LVEMP, 1997-2005) and the Lake Victoria Fisheries Research Project (LVFRP, 1997-2002), with funding from the European Commission (EC). Odongkara (2001) provides highlights of the key socio-economic status of the fisheries of Lake Victoria, Uganda.

Justification

While much information has already been collected around the Lake, the differences in study designs and the issues covered, together with the variations in timing, made it necessary to conduct a new study to provide a consistent starting point for later evaluations. In particular, there is growing need to provide answers to some of the principal questions frequently asked, namely what are the socio-economic characteristics of fisheries dependent communities around the lake, the role of migration, the way fishing fits within their broader livelihood strategies and how this differs between landing sites of different types.

Objectives

The overall objective of the survey was to provide a deeper understanding of the broad socio-economic characteristics and well-being of the different stakeholder groups immediately dependent on the Lake Victoria fisheries and the facilities available to them. This would provide a solid basis for further studies and for any interim or final evaluations of impact.

The specific objectives were:

1. To generate beach level information that would seek to extend that already gathered from previous and on-going studies, particularly the Fisheries Frame Survey. These would include:
   (a) Fisheries related activities
   (b) Landing, collection and trading of Nile perch, tilapia and Mukene
   (c) Numbers of Traders and Processors
   (d) Seasonal prices of fish
   (e) Boat ownership at the beaches
   (f) Social facilities at the beaches
2. To provide household information on the different categories of stakeholders dependent on the lake fisheries on the following parameters:
   (a) Demographic, social and educational status
   (b) Residency status
   (c) Housing characteristics
   (d) Assets owned (land, fishing gears etc.) and their location
   (e) Fishing activities undertaken through the year
   (f) Distribution of income between boat owners and crew
   (g) Level of involvement in fish trading/processing
   (h) Non-fishing activities
   (i) Health status
   (j) Well-being indicators

Study coverage and sampling

The study, which was conducted in all the three partner states simultaneously, covered a range of beach types, defined by the species principally targeted. The beaches covered by the survey were sub-sampled from among those already being covered by the Catch Assessment Survey (CAS). The CAS is collecting a range of information on catches and catch values on a quarterly basis. This would be used to estimate how the value of fish landed at the beach varies through the year and the numbers of fishers (crew and boat owners) who benefit from this. Connecting the two surveys together would allow considerably value to be added to the information already being gathered under the CAS, while freeing resources for socio-economic research of complementary issues.

Definition of beach types was based on the Frame Survey data of 2004. This gave the principal target species for each craft. Beach types were defined by the species principally targeted by the craft recorded there. Nile perch beaches were further divided between those where the use of outboard engines predominated (NP-O) and those where paddles and sails were the main form of propulsion (NP-M).

An important gap in the list of CAS in Uganda was, however, the lack of beaches where mukene was the principal target species. To ensure that there was adequate information on mukene fishers (boat owners and crew) and on those processing and trading in mukene, other beaches where there were a significant number of crafts targeting mukene were purposively selected.

At each landing site selected a detailed inventory of features and access to social facilities was made by the Survey Team Leader, complementing the information available from the Frame Survey. Estimates of the sizes of different stakeholder groups (apart from crew and boat owners, on whom information was available from the Frame Survey) was also made.

Data collection

Beach level data was collected from key informants using a formal, pre-coded beach level questionnaire. Data on individual stakeholders was collected using a questionnaire. Two survey teams worked simultaneously to collect the data and a total of 1,235 respondents were covered, from 34 beaches distributed in 10 districts, namely Mayuge, Busia, Bugiri, Jinja, Wakiso, Kalangala, Mukono, Mpigi, Rakai and Masaka. The data collection instruments are provided in the Appendices 2 and 3. In addition, direct observations were made at the landing sites.

Target groups

At each beach, interviews were conducted over two days with respondents from all four stakeholder groups: boat owners, crew (barias), fish traders/processors and other. The target sample for each group was 10, though this was not always achieved, especially at some smaller beaches. The Team Leaders were responsible for ensuring that targets were met and that interviews were timed to ensure coverage of different types of fishers that might land at different times. Respondents were selected at random on arrival.

Data analysis

Data was entered into an SPSS data file. Analysis was performed using SPSS as well as MS Excel. Data checking and analysis were carried out. Output summaries were presented as frequencies and charts and for the numerical data, means, minimums and maximums were computed.

2. BEACH LEVEL DATA

In broad terms, the Beach Level Survey sought to provide information that would build upon that already gathered under the Fisheries Frame Survey. Specifically, it covered:

a) Fisheries related activities
b) Landing, collection and trading of Nile perch, Tilapia and Mukene
c) Numbers of traders and processors
d) Seasonal prices of fish
e) Boat ownership at the beaches
f) Social facilities at the beaches

Table 2.1: Beaches surveyed, by beach type

Beach Type	Frequency	Percent
NP-O	5	14.7%
NP-M	11	32.4%
Tilapia	10	29.4%
Mukene	3	8.8%
Mixed	5	14.7%
Total	34	100.0%

The composition of beaches was considered to be representative of the beaches in Uganda, based on Frame Survey data.

Fisheries related activities

Repairing and making fishing boats

The results revealed that there were people employed for most of their time in repairing or making fishing boats at 30 out of the 34 beaches surveyed (Table 2.2). Most beach types had these people but Mukene beaches had the lowest proportion (66.7%). On average there were 2.83 such persons per beach as given in Table 2.3. This shows that there is demand for maintenance services and making of fishing boats at the beaches, which is important to increase the lifetime of the boats.

Table 2.2: Beaches with people employed in repairing or making fishing boats, by beach type

	Beach Type					Total Frequency	Total Percent
	NP-O	NP-M	Tilapia	Mukene	Mixed		
Yes	100.0%	90.9%	90.0%	66.7%	80.0%	30	88.2%
No		9.1%	10.0%	33.3%	20.0%	4	11.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	34	100.0%

Table 2.3: Number of people employed in repairing or making fishing boats per beach

N	Minimum	Maximum	Mean	Std. Deviation
30	1	8	2.83	1.783

Repairing and making fishing gear

There were also people employed for most of their time repairing or making fishing gear at 29 of the 34 beaches surveyed (Table 2.4). The average number of people employed in repairing or making fishing gear was 6.62 per beach (Table 2.5). The results show that gear services are available at most beaches, in response to demand for these services. This is important for increasing the lifetime of fishing gear.

Table 2.4: Beaches with people employed in repairing or making fishing gear by beach type

	Beach Type					Total Frequency	Total Percent
	NP-O	NP-M	Tilapia	Mukene	Mixed		
Yes	100.0%	90.9%	80.0%	66.7%	80.0%	29	85.3%
No		9.1%	20.0%	33.3%	20.0%	5	14.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	34	100.0%

Table 2.5: Number of people employed in repairing or making fishing gear per beach

N	Minimum	Maximum	Mean	Std. Deviation
29	1	20	6.62	5.538

Other direct services to the fishing industry

Most beaches, however, had no people directly supplying the fishing industry in other ways, for example ice provision (Table 2.6).

Table 2.6: Beaches with people employed in supplying the fishing industry in other ways

	Beach Type					Total Frequency	Total Percent
	NP-O	NP-M	Tilapia	Mukene	Mixed		
Yes	20.0%	11.1%	33.3%		20.0%	6	19.4%
No	80.0%	88.9%	66.7%	100.0%	80.0%	25	80.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	31	100.0%

Landing, collection and trading of Nile perch, Tilapia and Mukene

Nile perch fishery

Nile perch is landed by fishers and by collector boats and traded fresh at most beaches of all types, except at Mukene beaches. At Tilapia beaches, it is however, traded at only 50.0% of the beaches (Table 2.7). The implication of this is that facilities for handling Nile perch should not be limited to the mainly NP-O beaches, as the fish comes from other beaches as well.

Table 2.7: Beaches where Nile perch is landed, collected or traded in fresh form, by beach type

		Beach Type					Total (Freq)	Total (Perc)
		NP-O	NP-M	Tilapia	Mukene	Mixed		
Landed by fishers	Yes	100.0%	100.0%	100.0%	--	100.0%	27	100.0%
	Total	100.0%	100.0%	100.0%	--	100.0%	27	100.0%
Landed by collector boats	Yes	100.0%	100.0%	100.0%	--	--	5	100.0%
	No	--	--	--	--	--	--	--
	Total				--	--	5	100.0%
Traded in fresh form	Yes	80.0%	54.5%	50.0%	--	100.0%	20	58.8%
	No	20.0%	45.5%	50.0%	100.0%	--	14	41.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	34	100.0%

Concerning the processing of Nile perch, most beaches (18) acknowledged smoking as taking place at the NP-O, Tilapia and Mixed beaches (Table 2.8). Salting was practiced at Mixed beaches and together with sun-drying and frying, it is practiced on a limited level at the NP-O beaches. The use of smoking as the main processing methods has implication for wood fuel demand and its effects of forest resources and vegetation cover, leading to erosion and siltation of the lake.

Table 2.8: Beaches where Nile perch is processed, by beach type

		Beach Type					Total (Freq)	Total (Perc)
		NP-O	NP-M	Tilapia	Mukene	Mixed		
Dried	Yes	50.0%	100.0%				2	66.7%
	No	50.0%					1	33.3%
	Total	100.0%	100.0%				3	100.0%
Smoked	Yes	100.0%	72.7%	30.0%		40.0%	18	52.9%
	No		27.3%	70.0%	100.0%	60.0%	1	47.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	19	100.0%
Salted	Yes	50.0%				100.0%	3	75.0%
	No	50.0%					1	25.0%
	Total	100.0%				100.0%	4	100.0%
Fried	Yes	50.0%			100.0%		2	66.7%
	No	50.0%					1	33.3%
	Total	100.0%			100.0%		3	100.0%

Tilapia fishery

Landing of Tilapia by fishers was reported at 23 of the 34 beaches surveyed, while at 5 beaches it was landed by collector boats. Trading in fresh Tilapia was reported at 17 beaches (Table 2.9).

Table 2.9: Beaches where Tilapia was landed, collected or traded in fresh form

		Frequency	Percent
Landed by fishers	Yes	23	100.0%
	No	--	--
	Total	23	100.0%
Landed by collector boats	Yes	5	83.3%
	No	1	16.7%
	Total	6	100.0%
Traded in fresh form	Yes	17	100.0%
	No	--	
	Total	17	

The main method of processing Tilapia was smoking, reported at 12 of the beaches surveyed. Limited numbers of beaches reported drying and frying of the species (Table 2.10).

Table 2.10: Beaches where Tilapia was processed

		Frequency	Percent
Dried	Yes	1	50.0%
	No	1	50.0%
	Total	2	100.0%
Smoked	Yes	12	100.0%
	No	--	--
	Total	12	100.0%
Fried	Yes	2	100.0%
	No	--	--
	Total	2	100.0%
Salted	Yes	3	75.0%
	No	1	25.0%
	Total	4	100.0%

Mukene fishery

Mukene was reported to be landed at 8 beaches but sold fresh at only 2 of the beaches and landed by collector boats at 1 beach (Table 2.11). This shows the restricted areas within which mukene was fished and landed.

Table 2.11: Beaches where mukene was landed, collected and traded fresh

		Frequency	Percent
Landed by fishers	Yes	8	88.9%
	No	1	11.1%
	Total	34	100.0%
Landed by collector boats	Yes	16	50.0%
	No	16	50.0%
	Total	2	100.0%
Traded in fresh form	Yes	2	5.9%
	No	32	94.1%
	Total	34	100.0%

Only 7 of the beaches reported processing of mukene, through drying (Table 2.12). Smoking, and frying were not reported as processing methods for mukene at any of the beaches surveyed. However, at one beach, Buwagajjo, salting and sun-drying of mukene was practiced and the product sold to supermarkets and urban markets. A women's group was responsible for this method of processing.

Table 2.12: Beaches where mukene was processed

		No of Beaches	Percent of Beaches
Dried	Yes	7	87.5
	No	1	12.5
	Total	8	100.0
Smoked	Yes	--	--
	No	2	100.0
	Total	2	100.0
Fried	Yes	--	--
	No	2	100.0
	Total	2	100.0
Salted	Yes	--	--
	No	2	100.0
	Total	2	100.0

Numbers of Traders and Processors

The survey examined the numbers of people trading and processing Nile perch at the beaches. Results show that on average, there were more people trading and processing Nile perch at the beach (8.58) than those engaged in trading or processing only (Table 2.13). This is a reflection of the difficulties in trading fresh Nile perch due its perishability. Furthermore, it also shows that processing is just a stage in the trading in fish.

Table 2.13: Number of people making a living by: processing and trading Nile perch

	N	Minimum	Maximum	Mean	Std. Deviation
Trading Nile perch	21	2	20	5.81	4.490
Processing Nile perch	11	1	14	6.09	3.477
Trading and processing Nile perch	19	0	20	8.58	6.058

On average, there were 11.20 people processing Tilapia (Table 2.14), with a similar average trading and processing the fish. There were fewer people trading Tilapia without processing it. This again shows the importance of processing in trading fish, due to lack of facilities for preserving the fish in the fresh form.

Table 2.14: Number of people making a living by processing and trading tilapia:

	N	Minimum	Maximum	Mean	Std. Deviation
Processing Tilapia	5	2	20	11.20	7.918
Trading Tilapia	14	1	30	8.14	7.794
Trading and processing Tilapia	14	1	40	11.07	10.908

With respect to mukene, processing was the activity with the highest mean of people involved per beach of 16.63, followed by trading and processing (Table 2.15). This is because hardly any mukene is sold fresh and processing is a necessary stage in marketing.

Table 2.15: Number of people making a living by processing and trading mukene:

	N	Minimum	Maximum	Mean	Std. Deviation
Processing mukene	8	2	40	16.63	11.673
Trading mukene	5	1	30	9.00	11.937
Trading and processing mukenea	7	2	50	13.86	17.014

Seasonal prices of fish

Seasonal variations were reported in the prices at which fresh Nile perch was traded at the beaches, with the mean of the typical price/kg being Ush 1,454.55 (US$ 0.81), the mean highest prices being Ush 1,900.00 (US$ 1.06 and the mean lowest Ush 1,134.85 (US$ 0.63)(Table 2.16). These variations are attributed to changes in fish catch and in demand by the overseas buyers.

Table 2.16: Typical, highest and lowest prices of fresh Nile perch per kg in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical prices traded at the beaches	33	200	2,200	1,454.55	471.759
Highest price traded at the beaches	32	700	2,700	1,900.00	445.769
Lowest prices traded at the beaches	33	300	1,800	1,134.85	411.264

With respect to Tilapia, the mean typical price was Ush 908.70 per kg, the mean highest price was Ush1,295.65 while the mean lowest price was Ush 728.26 (Table 2.17). Similarly, these price variations are attributed to changes in catches and demand.

Table 2.17: Typical, highest and lowest prices of fresh whole Tilapia in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical prices traded at the beaches	23	50	2,000	908.70	396.763
Highest prices traded at the beaches	23	500	3,000	1,295.65	578.775
Lowest prices traded at this beach	23	350	1,500	728.26	271.706
Number of kgs per whole fresh tilapia traded at the beaches	18	1	3	1.19	0.572.

The mean typical price of fresh mukene was Ush 4,000 per basin (Ush 114 per kg), the mean highest price was Ush 4,600 (Ush 131 per kg) while the mean lowest price was Ush 2,308.33 per basin (Ush 66 per kg) (Table 2.18). (Average basin was 35 kgs.)

Table 2.18: Typical, highest and lowest prices of fresh mukene per basin/open-top jerrican in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical prices traded at the beaches	6	500	10,000	4,000.00	3,563.706
Highest prices traded at the beaches	6	500	12,000	4,600.00	5,077.401
Lowest prices traded at the beaches	6	250	7,000	2,308.33	2,682.987
Number of kgs per basin of fresh mukene traded at this beach	3	3.8	30	12.70	14.9.843

The typical mean price offered for a kg of smoked Nile perch at the beaches was UShs. 2,500, while the mean highest price offered was UShs. 1,750.00, and the mean lowest price at the beaches was UShs.1650.00. Refer to the Table 2.19 below.

Table 2.19: Typical, highest and lowest prices of smoked Nile perch per kg in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical prices traded at the beaches	7	1,000	8,000	2,500.00	2,449.490
Highest prices traded at the beaches	8	700	6,000	1,750.00	1,739.458
Lowest prices traded at the beaches	8	1,000	2,500	1,650.00	590.399

Table 2.20 below shows typical, highest and lowest prices offered at beaches for smoked whole Tilapia in UShs. The mean typical price for a whole smoked Tilapia was UShs. 1,285.71. The mean highest and lowest prices were 1,842.86 and 1,083.33 respectively.

Table 2.20: Typical, highest and lowest prices of smoked whole Tilapia in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical prices traded at the beaches	7	700	2500	1,285.71	620.292
Highest prices traded at the beaches	7	1000	3000	1,842.86	745.782
Lowest prices traded at the beaches	6	500	2000	1,083.33	523.132
Number of kgs per whole smoked tilapia traded at this beach	6	.2	1.4	..4	.

In Table 2.21 below, the mean typical price for salted Nile perch was UShs.700 per kg. The mean highest and lowest prices for salted/ sun dried Nile perch at beaches were UShs. 1,000 and 400 respectively.

No comparable data was available on smoked mukene as mukene was not processed through smoking at the beaches surveyed.

Table 2.21: Typical, highest and lowest prices of salted and sun dried Nile perch per kg in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical price of salted Nile perch	1	700	700	700.00	.
Highest price of salted Nile perch	1	1000	1000	1000.00	.
Lowest price of salted Nile perch	1	400	400	400.00	.
Typical price of sun dried Nile perch	1	3	3	3.00	.
Highest price of sun dried Nile perch	0	--	--	--	
Lowest price of sun dried Nile perch	0	--	--	--	

The typical mean price of sun dried whole Tilapia was UShs 1,700 per kg. This price was relatively the same whether during high or low seasons. This was attributed to the high demand for salted/sundried Tilapia (Table 2.22).

Table 2.22: Typical, highest and lowest prices of sun dried whole Tilapia in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical price of sun dried whole Tilapia	12	1,700	1,700	1,700	
Highest price of sun dried Tilapia in	12	1,700	1,700	1,700	
Lowest price of sun dried whole Tilapia	12	1,700	1,700	1,700	
Number of kgs per whole sun dried tilapia traded at this beach	12	.2	1.1	1	.707

Table 2.23 below shows typical prices, highest and lowest which offered for a tin of dried mukene at beaches. The mean typical price of a tin of mukene was UShs. 1,600.The mean highest price was UShs. 5000 and the mean lowest price was UShs. 3,500 per tin.

Table 2.23: Typical, highest and lowest prices of sun dried mukene per tin in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical price of sun dried dagaa per tin	4	400	4,000	1,600.00	1,675.311
Highest price of sun dried dagaa per tin	4	600	5,000	2,825.00	2,511.805
Lowest price of sun dried dagaa per bag	4	300	3,500	2,075.00	1,337.597
Valid N (listwise)	0				
Number of kgs per tin of sun dried dagaa traded at this beach	2	2	4	3.00	1.414

At beaches only data relating to frying of Tilapia was available. The mean typical price of a whole fried Tilapia was USh. 1,500 and the mean highest and lowest prices were USh. 1,700 and 1,200 respectively. At beaches where tilapia was being fried, the demand was relatively high as seen from the typical and highest price offered for a whole fired tilapia.

Table 2.24: Typical, highest and lowest prices of fried whole Tilapia in USh

	N	Minimum	Maximum	Mean	Std. Deviation
Typical price of fried whole Tilapia	3	600	1,500	933.3	493.288
Highest price of fried Tilapia	4	300	1,700	950.00	580.230
Lowest price of fried whole Tilapia	4	400	1,200	675.00	359.398
Number of kgs per whole fried tilapia traded at this beach	--	--	--	--	--

Boat ownership

The mean highest number of boats owned by the boat owners at the beaches surveyed was 6.15, with a maximum of 60 boats and minimum of 2 (Table 2.25). This low average is positive for management of the fisheries, as it implies that no single individuals can affect the resource through his/her single actions.

Table 2.25: The largest number of boats owned by anyone at the beach

	N	Minimum	Maximum	Mean	Std. Deviation
Number of boats	33	2	60	6.15	9.840

Most of the respondents did not own boats at other beaches (77.4%) as shown in Table 2.26.

Table 2.26: Respondents who own boats at other beaches as well

	Frequency	Percent
Yes	7	22.6
No	24	77.4
Total	31	100.0

Social facilities

Dispensaries

Most of the beaches surveyed were served by dispensaries which were reported to be always functioning (Table 2.27). This indicates that the stakeholders had access to at least the basic health services.

Table 2.27: Functioning of the dispensary

	Frequency	Percentage
Always	28	96.5
Never	1	3.5
Total	29	100.0

At most of the beaches, the dispensaries were at the Sub-county (30.7%), followed by those beaches where the dispensaries were within the village (Table 2.28). Sub-counties are usually within the reach of communities, so the dispensaries could be considered to be accessible, with respect to distance.

Table 2.28: Location of the nearest dispensary

	Frequency	Percentage
Within this village	8	29.7
Another village nearby	6	22.2
This Sub-county	11	40.7
This District	2	7.4
Total	27	100.0

The dispensaries serving most of the beaches were operated by Government (85.2%) followed by private medical establishments operated for profit (Table 2.29). Since Government dispensaries are free, it shows that the costs of medical services to the stakeholders were generally low. However, it is also known that the services from Government dispensaries are not always effective, so they may not be getting the best medical services.

Table 2.29: Who operated the dispensary

	Frequency	Percentage
Government	23	85.2
Voluntary agency	1	3.7
Private for profit	3	11.1
Total	27	100.0

Clinics

Like the dispensaries, the clinics serving most beaches were also always operating (92.3%) as indicated by Table 2.30. This shows that there was opportunity for continuous provision of services from these clinics.

Table 2.30: Whether there is a functioning clinic

	Frequency	Percentage
Always	24	92.3
Never	2	7.7
Total	26	100.0

At most of the beaches, the clinics were within the villages (66.7%), followed by those where the clinics were within another village (Table 2.31). This shows that they were within the reach of the stakeholders, with respect to distance.

Table 2.31: Location of the nearest clinic

	Frequency	Percentage
Within this village	16	66.7
Another village nearby	5	20.8
This loc/ward/SC	2	8.3
This District	1	4.2
Total	24	100.0

Concerning who the operators of the clinics were, at most beaches they were operated by private operators for profit (95.8%) (Table 2.32). The implication of this is that the users would have to meet the full cost of the services provided by the clinics, which may not always be cheap and thus not affordable by some sections of the communities.

Table 2.32: Who operated the clinic

	Frequency	Percentage
Voluntary agency	1	4.2
Private for profit	23	95.8
Total	24	100.0

Hospitals

It was reported that the hospitals to which the beaches were linked were always working (Table 2.33). This indicates the stability with which the stakeholders could get health services at the hospital level.

Table 2.33: Functioning of the hospital

	Frequency	Percentage
Always	21	100.0
Never	--	--
Total	21	100.0

However, the hospitals serving most beaches were located at the district level (61.9%), followed by beaches where they were at the same Sub-counties (Table 2.34). This implies that there was a distance to cover in order to reach the hospitals, and given the poor transportation systems in the rural areas, especially with respect to sick people, this could be a constraint to accessing hospital services by the fisheries stakeholders.

Table 2.34: Location of the nearest hospital

	Frequency	Percentage
Within this village	2	9.5
Another village nearby	1	4.8
This Sub-county	5	23.8
This District	13	61.9
Total	21	100.0

The hospitals serving most of the beaches were operated by Government (84.2%) (Table 2.35). This implies low cost of medical services. However, services at Government are often said to be poor, so despite the low cost, the stakeholders could be obtaining only poor quality services from their hospitals.

Table 2.35: Who operated the hospital

	Frequency	Percentage
Government	16	84.2
Voluntary agency	3	15.8
Total	19	100.0

Primary schools

All the beaches reported that their primary schools were always functioning (Table 2.36). That was because of the Government initiative to provide free education under the Universal Primary Education programme. It means that children of the stakeholders always had opportunity to attend school.

Table 2.36: Functioning of the primary school

	Frequency	Percentage
Always	29	100.00
Never	--	--
Total	29	100.00

Most of the beaches reported that the schools were within the village (58.6%), while at other beaches they were in another village (Table 2.37). This shows that for most beaches the schools were reasonably close for the children to attend.

Table 2.37: Location of the nearest primary school

	Frequency	Percentage
Within this village	17	58.6
Another village nearby	8	27.6
This Sub-county	4	13.8
Total	29	100.0

At most of the beaches, the schools were operated by Government (77.8%) (Table 2.38). This re-enforces the suggestion that the schools would be free and affordable to the children.

Table 2.38: Who operated the primary school

	Frequency	Percentage
Government	21	77.8
Voluntary agency	2	7.4
Private for profit	4	14.8
Total	27	100.0

Secondary schools

Most of the beaches reported that their secondary schools were always functioning (95.8%) (Table 2.39). This follows the massive investment in secondary education in the recent years in Uganda. This shows that there was opportunity for the children to attend secondary education.

Table 2.39: Functioning of the secondary school

	Frequency	Percentage
Always	23	95.8
Never	1	4.2
Total	24	100.0

For most of the beaches, the secondary schools were within their Sub-counties (39.1%) (Table 2.40). This would reflect reachable distances, allowing students to reside at home to attend school, thus cutting down the cost of secondary education.

Table 2.40: Location of the nearest secondary school

	Frequency	Percentage
Within this village	5	21.7
Another village nearby	6	26.1
This Sub-county	9	39.1
This District	3	13.0
Total	23	100.0

The secondary schools serving most beaches were Government operated (52.2%), followed closely by those operated by private owners for profit (Table 2.41). This was because Government secondary schools were neither sufficient nor provided good quality teaching. Private owners, therefore, moved in to fill the gaps in sufficiency and quality of education. Furthermore, unlike primary education that was free, secondary education was paid for and the costs did not vary significantly between Government and private schools.

Table 2.41: Who operated the secondary school

	Frequency	Percentage
Government	12	52.2
Voluntary agency	1	4.3
Private for profit	10	43.5
Total	23	100.0

Community halls

Most beaches reported that they had some form of a community hall (94.7%) (Table 2.42). This reflected the high demand for entertainment among the stakeholders at the beaches. It was also possible to provide such halls because of the large numbers of people concentrated at the beaches.

Table 2.42: Functioning of the community hall

	Frequency	Percentage
Always	18	94.7
Sometimes	1	5.3
Total	19	100.0

Most beaches reported that the community halls were located at the Sub-county headquarters (42.1%) (Table 2.43). This shows that the halls were not only serving the fisheries stakeholders but the general population of the sub-counties. Such halls were not only used for entertainment but also training and meetings.

Table 2.43: Location of the nearest community hall

	Frequency	Percentage
Within this village	2	10.5
Another village nearby	4	21.1
This Sub-county	8	42.1
This District	5	26.3
Total	19	100.0

The community halls were operated mostly by Government (68.4%), followed by private owners for profit (Table2.44). The private owners were able to invest in community halls because they could generate returns from such activities as workshops, discos and video shows.

Table 2.44: Who operated the community hall

	Frequency	Percentage
Government	13	68.4
Voluntary agency	1	5.3
Private for profit	5	26.3
Total	19	100.0

3. CHARACTERISTICS OF STAKEHOLDERS

The Survey of Stakeholders sought to provide household information on the different categories of stakeholders dependent on the Lake Victoria fisheries, covering the following parameters:

a) Demographic, social and educational status
b) Residency status
c) Housing characteristics
d) Assets owned and their location
e) Fishing activities undertaken through the year
f) Distribution of income between boat owners and crew
g) Level of involvement in fish trading/processing
h) Non-fishing activities
i) Health status
j) Well-being indicators

Ethnic groups among stakeholders

The ethnic groups of the stakeholders were examined. Of the 1,235 respondents interviewed at the 34 beaches sampled, respondents of the Baganda tribe appeared most, constituting 40.2% of the sample, followed by the Basoga and Samia. Other tribes constituted 20.3% and included the Banyoro, Alur, Jaluo and Bakenye (Table 3.1).

Table 3.1: Distribution of respondents by tribe

	Frequency	Percent
Baganda	497	40.2
Basoga	187	15.1
Banyankole	45	3.6
Bakiga	4	.3
Banyarwanda	40	3.2
Samia	157	12.7
Japadhola	20	1.6
Bagisu	30	2.4
Acholi	4	.3
Others	251	20.3
Total	1235	100.0

Place of birth

Examination of the birth places showed that the majority of the stakeholders in the sample (62.4%).were born in districts other than those where they were found operating and only 8.6% were born within the same villages (Table 3.2).

Table 3.2: Birth places by category of respondents

Birth Place	Boat owner	Crew member	Fish processor or trader	Other	Total (Count)	Total (Percentage)
Other district	56.9%	64.6%	66.2%	61.7%	762	62.4%
This district	23.7%	18.3%	19.8%	15.8%	243	19.9%
Within this village	10.6%	8.4%	6.4%	9.3%	105	8.6%
Another village nearby	3.4%	2.9%	1.7%	6.0%	39	3.2%
Other Country	3.1%	2.3%	3.8%	2.7%	37	3.0%
This sub-county	2.3%	3.5%	2.0%	4.4%	35	2.9%
Total	100.0%	100.0%	100.0%	100.0%	1,221	100.0%

The activities the stakeholders were involved in were examined. The respondents were often involved in more than one activity but the majority were involved as crew members (33.8%) followed by boat owning or renting-in (Table 3.3).

Table 3.3: Activities respondents were involved in

	Frequency	Percent
Owns or rents-in a boat	381	30.9
Crew member	417	33.8
Trades or Processes Fish	357	28.9
Other fisheries related activity	180	14.6

Concerning other fisheries activities they were involved in, the majority (43.3%) were involved as net makers/repairers (Table 3.4)

Table 3.4: Other fisheries related activities respondents were involved in

	Frequency	Percent
Tenderer/Auctioneer/Broker	3	1.7
Boat builder/Repairers	60	33.3
Fish lifters	32	17.8
Net Maker/Repairer	78	43.3
Others	7	3.9
Total	180	100.0

Overall, the majority of the respondents in the sample were boat owners (28.8%, N=1,235) Chart 3.1).

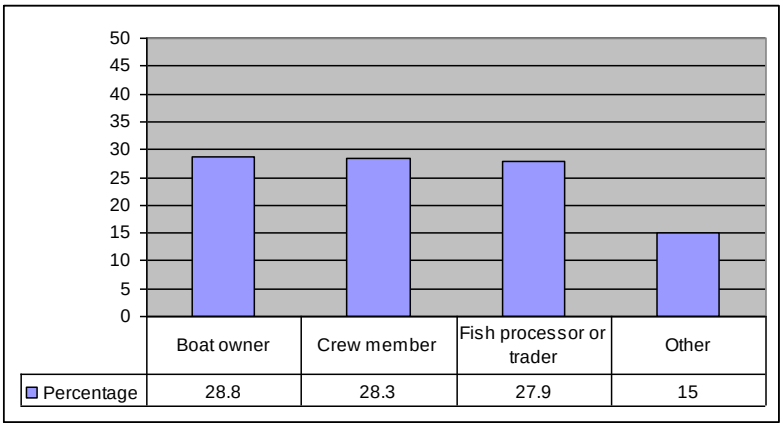


Chart 3.1: Activities most important to the respondents

Sex of respondents

The number of male respondents in the survey was rather high, compared to their female counterparts. Of all the respondents interviewed, 86.2 % were males and only 13.8% were females (Table 3.5). The results show that men have dominated every activity in the fisheries, although significant differences existed between boat owners and crew on one side and processors and traders on the other. This has great implications for the livelihood opportunities for women in the fisheries.

Table 3.5: Sex of respondents by stakeholder category

Category	**Male**	**Female**	**Total**
Boat owners	95.8%	4.2%	100.0%
Crew members	99.4%	.6%	100.0%
Fish processors or traders	55.8%	44.2%	100.0%
Others	99.5%	.5%	100.0%
Total	**86.2%**	**13.8%**	**100.0%**

Marital status

The majority of the respondents are married (71.7%) and this is true across the entire stakeholder groups (Table 3.6). Marriage is considered a factor in the stability of stakeholders. There is also significant proportion of singles, which is highest among the crew members (33.4 %)

Table 3.6: Marital status of stakeholders

Marital status	Boat owner	Crew member	Fish processor or trader	Other	Total (Count)	Total (Percentage)
Single	12.1%	33.4%	13.7%	30.3%	263	21.3%
Married	84.8%	62.9%	72.1%	62.7%	886	71.7%
Separated	2.8%	2.9%	8.4%	6.5%	61	4.9%
Widow/er	.3%	.9%	5.8%	.5%	25	2.0%
Total	100.0%	100.0%	100.0%	100.0%	1,235	100.0%

However, cross-tabulation of marital status with sex of respondents revealed that although the majority of both men and women are married, there are significant proportions of single males (23.4%) as well as separated women (14.1%) and widowed women (11.2%) (Table 3.7). These people could constitute a factor in the spread of HIV/AIDS and other STDs within fishing communities.

Table 3.7: Marital status by sex of respondent

Marital status	Male	Female	Total
Single	23.4%	8.2%	21.3%
Married	72.6%	66.5%	71.7%
Separated	3.5%	14.1%	4.9%
Widow/er	.6%	11.2%	2.0%
Total	100.0%	100.0%	100.0%

Age of respondents

The largest proportion of respondents were of the age group of 19-29 years (45.3%), followed by 30-39 years (33.2%) (Table 3.8, Chart 3.2). Only small proportions were below 18 years (2.9%) or above 60 years (1.7%). The results show that most of the stakeholders fall within the economically active age brackets of 19-49 years (92.3%), capable of participating in productive activities, which is a positive factor for the development of the fisheries sector. Crew members represented the youngest group, with 82% of them between the age brackets of 19-39and 5.1% being 18 years and below.

Table 3.8: Distribution of age of respondents by stakeholder category

Age groups	Boat owner	Crew member	Fish processor or trader	Other	Total (Count)	Total (Percentage)
18 Years and Below	1.4%	5.1%	1.5%	4.3%	36	2.9%
19-29 Years	34.8%	60.9%	39.0%	47.6%	559	45.3%
30-39 Years	41.9%	22.6%	34.9%	33.5%	410	33.2%
40-49 Years	16.9%	7.7%	19.8%	8.1%	170	13.8%
50-59 Years	3.9%	2.0%	3.8%	2.7%	39	3.2%
60 Years and above	1.1%	1.7%	1.2%	3.8%	21	1.7%
Total	100.0%	100.0%	100.0%	100.0%	1,235	100.0%

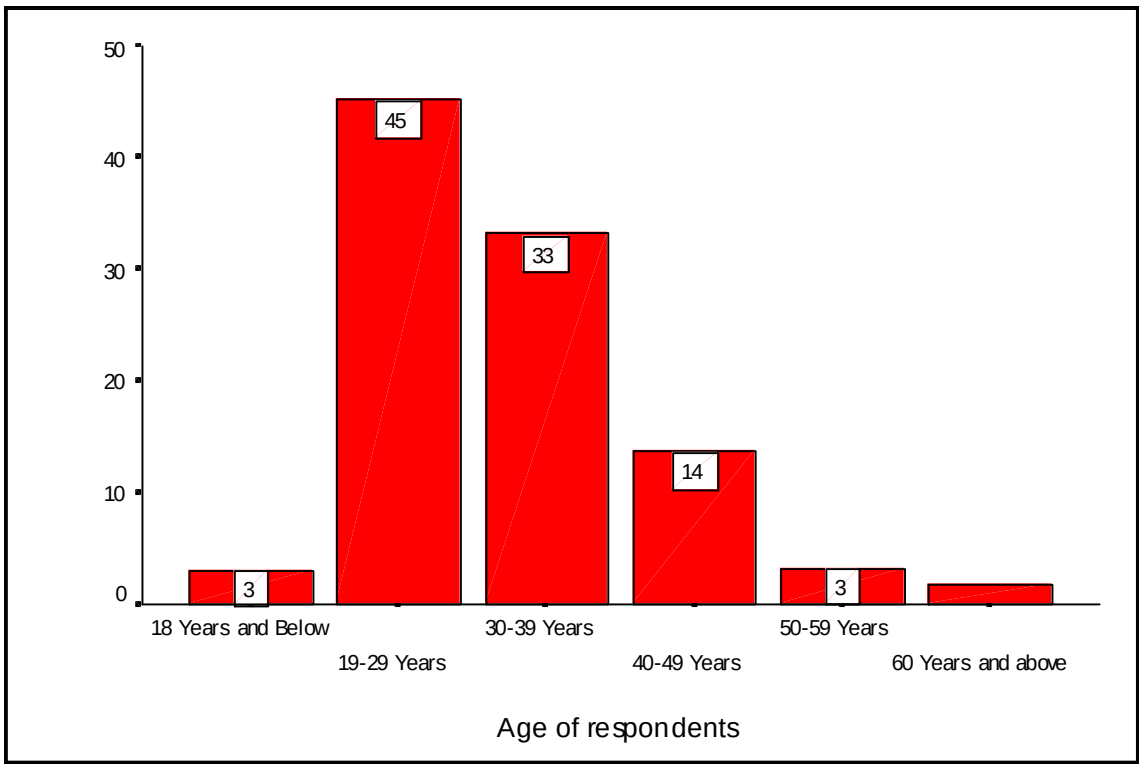


Chart 3.2: Age distribution of respondents

Educational status

The gravity of the low educational status among the different stakeholders in fisheries is revealed by the proportion of respondents who had no education (13.3%) or did not complete primary education (43.0%). The latter formed the majority, across all the stakeholder groups. This could be attributed to the poor educational facilities at the landing sites, cases of long distances to schools, low incomes for some fisheries stakeholders and the low demand for education among fishers, who would like their

children also to remain in then fishery activities. The implication of this is that entrepreneurship, skills development and resource management among fishers would all be constrained, leading to low development and unsustainable fisheries exploitation. However, the entry of graduates of higher institutions into the fishery (1.3%) presents hopes for improved skills, technical expertise and sustainable management practices in the fisheries. Table 3.9 below summarizes the results from the distribution of by education status by category of the respondents. See also a cross tabulation of the education status of the respondents by gender in table 8.

Table 3.9: Educational status by category of respondents

Educational level	Boat owner	Crew member	Fish processor or trader	Other	Total (Freq)	Total (Perc)
No education	9.3%	16.0%	13.7%	15.5%	163	13.3%
Incomplete primary	42.7%	51.3%	36.3%	40.3%	525	43.0%
Complete primary	20.1%	14.9%	23.0%	16.0%	230	18.8%
Incomplete secondary	22.3%	15.2%	21.8%	22.1%	246	20.1%
Completed secondary	4.2%	2.0%	4.1%	3.3%	42	3.4%
Higher	1.4%	.6%	1.2%	2.8%	16	1.3%
Total	100.0%	100.0%	100.0%	100.0%	1,222	100.0%

Considering gender aspects, the women are the less educated as compared to the men. Educated women account for a paltry 0.04% while the educated men in the whole population of household heads account for 4.34%. The calculations are based on the assumption that educated persons are those who completed secondary and higher education.

Table 3.10 below shows the cross sectional analysis of the distribution of respondents' education status by gender.

Table 3.10: Education level by sex of respondent

Educational status	Male	Female	Total
No education	12.3%	19.5%	13.3%
Incomplete primary	43.9%	37.3%	43.0%
Complete primary	17.9%	24.3%	18.8%
Incomplete secondary	20.8%	16.0%	20.1%
Completed secondary	3.6%	2.4%	3.4%
Higher	1.4%	.6%	1.3%
Total	100.0%	100.0%	100.0%

Household characteristics

The survey sought to provide information on the households of the fisheries stakeholders. The data revealed that most of the households in the sample were male headed (91.4%), as given in Table 3.11.

Table 3.11: Sex of Heads of House Hold

	Frequency	Percent
Male	128	91.4%
Female	12	8.6%
Total	140	100.0%

The data also reveals that most HHHs(91.2%) were reported to be married (Table 3.12). However, cases of widow/er were also reported, that might be associated to HIV/AIDS effects, especially if their spouses died of HIV/AIDS related causes.

Table 3.12: Marital status of Heads of House Hold

	Frequency	Percent
Married	120	81.6
Single	14	9.5
Widow/er	9	6.1
Separated	4	2.7
Total	147	100.0

Concerning the relationship to the head of their households (HHH), most of the respondents interviewed were actually the HHHs (83.45%) (Table 3.13). The large involvement of HHHs shows the importance of the fishery activities to the households. This point is re-enforced by the large number of spouses involved.

Table 3.13. Relationship of respondent to head of household

	Frequency	Percent
Respondent is HHH	1,007	83.45
Husband/wife	116	9.65
Son	50	4.15
Daughter	1	.15
Brother	12	1.05
Sister	1	.15
Other relative	9	.75
Not related	12	1.05
Total	1,208	100.05

Dependency Status

Information was collected on the number of persons in the household, distinguishing between male and female adults and children. The data shows that on average there were 2.13 male adults and 1.55 female adults in the households (Table 3.14). Of these, on average, 2.22 adult males and 1.52 adult females were dependent on the respondent. More adult males than females were involved in fishery activities.

Table 3.14: Adult males and females belonging to the households

	Adult males		Adult females	
	Mean	Std. Deviation	Mean	Std. Deviation
Number in household	2.13	1.915	1.55	1.487
Dependent on respondent	2.22	2.017	1.52	1.549
Dependent on respondent and living here	2.04	2.036	.98	1.128
Involved in fishing	.59	1.281	.11	.393

With respect to children, the mean number belonging to the households was 2.43 for both boys and girls (Table 3.15). However, on average, there were more boys involved in fishing (0.13) than girls (0.03) per household.

Table 3.15: Male and female children belonging to the households

	Male children		Female children	
	Mean	Std. Deviation	Mean	Std. Deviation
Number in household	2.43	2.167	2.43	2.159
Dependent on respondent	2.36	2.134	2.40	2.105
Dependent on respondent and living here	1.58	1.760	1.67	1.931
Involved in fishing	.13	.542	.03	.232

Children attending school

Only 50 respondents reported that they had children in nursery school, reflecting a low attendance of nursery education among the stakeholders. This is explained by the lack of nursery education facilities at the landing sites, attributed to low demand for such education. On average, these respondents had 1.46 children in nursery.

Most of the respondents reported having children at school, given by the high N values (Table 3.16). However, the number of respondents declined with higher levels of education from Primary through Secondary to University and College.

The total number of children reported to be in school was high in lower classes than in higher classes, Colleges and University (Table 3.16). This could be attributed to the policy of Universal Primary Education (UPE) that is being implemented by the Government.

However, relatively fewer respondents, given by the N values, reported still having children in secondary schools and even fewer in university, college and vocational colleges (Table 3.16). The highest average number of children per respondent was 1.55, found in S6, presumably due to the need to repeat S6, having failed to go to university or college.

Few respondents provided information on their children who left school (Table 3.16). The number of children dropping out of school was, therefore, small compared to the number in school for all classes. However, the data revealed that children consistently left school throughout the Primary, Secondary, College and University levels. Many children from the fishing communities were, therefore, not completing their education.

Table 3.16: No. of children in the household still in education and those who have left

Class	Children in the household still at school			Children in the household who left school		
	N	Sum	Mean	N	Sum	Mean
Primary						
P1	360	494	1.37	0	--	--
P2	352	419	1.19	10	12	1.20
P3	341	434	1.27	11	14	1.27
P4	303	356	1.17	19	22	1.16
P5	237	295	1.24	23	25	1.09
P6	195	242	1.24	24	37	1.54
P7	187	237	1.27	42	57	1.36
Secondary						
S1	92	111	1.21	23	25	1.09
S2	91	118	1.30	20	23	1.15
S3	49	59	1.20	11	14	1.27
S4	64	91	1.42	21	25	1.19
S5	14	16	1.14	4	5	1.25
S6	22	34	1.55	9	9	1.00
University	9	16	1.78	3	5	1.67
College	2	2	1.00	2	3	1.50
Vocational College	5	7	1.40	3	4	1.33

4. HOUSING CHARACTERISTICS

Ownership and types of houses

The majority of respondents (76.7%) reported owning houses, and 23.3% of them did not, either living in rented houses or sharing with other persons. The difficulties of building houses were often attributed to the lack of building materials and the fact that the beaches were owned by individuals who were unwilling to lease the land out to others for construction.

Discussions revealed that many people were also unwilling to construct houses because they were migrants, coming to beaches in the high fishing seasons and leaving as soon as the low seasons set in.

Out of the 947 people who reported owning houses, the majority (35.6%) owned semi-permanent houses (Chart 4.1).

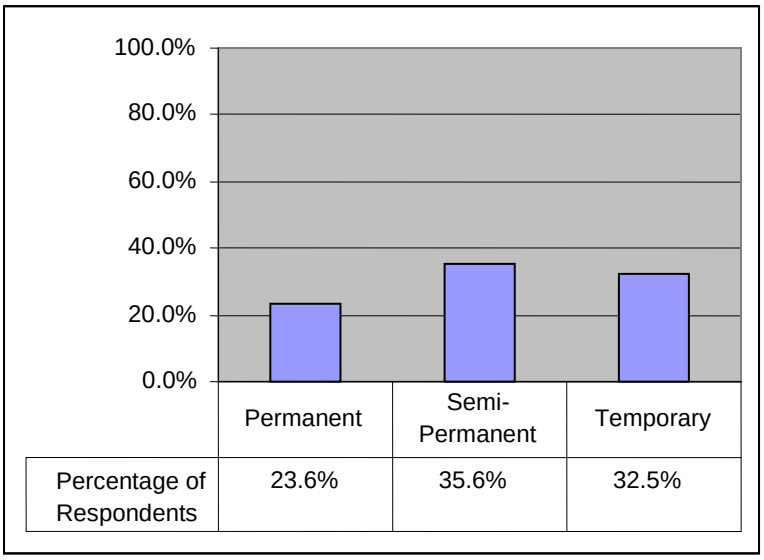


Chart 4.1: Respondents owning the different types of houses (N=947)

Of the 947 people who reported owning houses, 61.8% owned only one house (Table 4.1). However, up to 10 houses were reportedly owned by one individual. On average, the respondents owned 1.61 houses (N=947).

With respect to permanent houses, only 23.6% of the respondents reported owning them (Chart 4.1) and of these, the majority (79.4%) owned just one each (Table 4.1). However, there was a respondent reporting ownership of up to 6 permanent houses. The average respondent owned 1.27 houses.

Semi-permanent houses were reported to be owned by only 35.6% of the respondents (Chart 4.1). Of these the majority (26.0%) owned only one each. The average number of semi-permanent houses owned by a respondent was 1.42.

With respect to temporary houses, only 32.5% of respondents reportedly owned these (Table 4.1). Of these, the majority (78.6%) owned only one each. The mean number of temporary houses owned was 1.29.

Table 4.1: Number of houses owned by respondents

No. of houses owned	Permanent		Semi-permanent		Temporary		Total	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
1	231	79.4	321	73.0	315	78.6	585	61.8
2	47	16.2	81	18.4	64	16.0	243	25.7
3	10	3.4	26	5.9	17	4.2	68	7.2
4	2	.7	3	.7	3	.7	26	2.7
5			6	1.4			9	1.0
6	1	.3	1	.2	1	.2	10	1.1
7			1	.2	1	.2	5	.5
10			1	.2			1	.1
Total	291	100.0	440	100.0	401	100.0	947	100.0

Location of houses

Only 6.0% of respondents reported that they had permanent houses located in the village. Of these, the majority (77.6%) owned only 1 permanent house in the village (Table 4.2). The mean number of permanent houses owned and located in the village was 1.27.

Only 17.6% of respondents reported owning semi-permanent houses located in the village. Of these, 77.4% owned only 1 semi-permanent house in the village. The mean number of semi-permanent houses owned in the village was 1.38.

Only 17.7% of respondents reported that the temporary houses they owned were located in the village. Of these, 77.5% owned only 1 temporary house in the village. On average, the respondents owned 1.30 temporary housed located in the village.

Table 4.2: Respondent's houses located in the village

Number of houses	Permanent		Semi-Permanent		Temporary	
	Freq	Perc	Freq	Perc	Freq	Perc
1	66	77.6	168	77.4	169	77.5
2	15	17.6	31	14.3	38	17.4
3	4	4.7	14	6.5	8	3.7
4					2	.9

5			2	.9		
6					1	.5
7			1	.5		
10			1	.5		
Total	85	100.0	217	100.0	218	100.0

Respondents' houses located in the sub-county were examined. Only 3.0% of respondents reported that they had permanent houses located in the sub-county where they operated. Of these 81.1% had only 1 permanent house in the sub-county (Table 4.3). The mean number of permanent houses owned by respondents in the sub-county was 1.22.

Only 2.7% of the respondents reported that they had semi-permanent houses in the sub-county where they operated. Of these, the majority (78.8%) had only one semi-permanent house in the sub-county. The mean number of semi-permanent houses owned by respondents in the sub-county was 1.36.

Only 2.2% of the respondents reported that they had temporary houses in the sub-county where they operated (Table xx). Of these, the majority (96.3%) had only one temporary house in the sub-county. The mean number of temporary houses owned by respondents in the sub-county was 1.07.

Table 4.3: Respondent's houses located in the Sub-county

	Permanent		Semi-Permanent		Temporary	
Number of houses	Freq	Perc	Freq	Perc	Freq	Perc
1	30	81.1	26	78.8	26	96.3
2	6	16.2	4	12.1		
3	1	2.7	2	6.1	1	3.7
5			1	3.0		
Total	37	100.0	33	100.0	27	100.0

Respondents' houses located in the district

Some 3.6% of the respondents reported that they had permanent houses in the district where they operated (Table 4.4). Of these, the majority (86.7%) had only one permanent house in the district. The mean number of permanent houses owned by respondents in the district was 1.13.

Some 5.0% of the respondents reported that they had semi-permanent houses in the district where they operated. Of these, the majority (87.1%) had only one semi-permanent house in the district. The mean number of semi-permanent houses owned by respondents in the district was 1.24.

Some 2.3% of the respondents reported that they had temporary houses in the district where they operated. Of these, the majority (92.9%) had only one temporary house in the district. The mean number of temporary houses owned by respondents in the district was 1.07.

Table 4.4: Respondent's houses located in the district

	Permanent		Semi-Permanent		Temporary	
Number of houses	Freq	Perc	Freq	Perc	Freq	Perc
1	39	86.7	54	87.1	26	92.9
2	6	13.3	3	4.8	2	7.1
3			4	6.5		
5			1	1.6		
Total	45	100.0	62	100.0	28	100.0

Respondents' houses located in other districts

The data reveals that 10.3% of the respondents had permanent houses located in other districts. Of these the majority owned only 1 permanent house in other districts (82.7%) (Table 4.5). The average number of permanent houses owned in other districts was 1.26.

The data also reveals that 10.4% of the respondents had semi-permanent houses located in other districts. Of these the majority owned only 1 semi-permanent house in other districts (84.5%). The average number of semi-permanent houses owned in other districts was 1.25.

The data further shows that 5.7% of the respondents had temporary houses located in other districts. Of these the majority owned only 1 temporary house in other districts (81.7%). The average number of temporary houses owned in other districts was 1.23.

Table 4.5: Respondent's houses located in other districts

	Permanent		Semi-Permanent		Temporary	
Number of houses	Freq	Perc	Freq	Perc	Freq	Perc
1	105	82.7	109	84.5	60	84.5
2	15	11.8	13	10.1	5	7.0
3	5	3.9	3	2.3	5	7.0
4	1	.8	3	2.3	1	1.4
5			1	.8		
6	1	.8				
Total	127	100.0	129	100.0	71	100.0

Respondents' houses located outside the district but within the country

Only 0.6% of the respondents had permanent houses located outside the district but within the country. Of these the majority owned only 1 permanent house outside but within the country (71.4%) (Table 4.6). The average number of permanent houses owned outside but within the country was 2.0.

Only 0.7% of the respondents had semi-permanent houses located outside the district but within the country (Table 4.6). All of these respondents owned only 1 semi-permanent house outside but within the country. The average number of semi-permanent houses owned outside but within the country was, therefore 1.0.

Only 0.5% of the respondents had temporary houses located outside the district but within the country. All of these respondents owned only 1 temporary house each outside but within the country (Table 4.6). The average number of temporary houses owned outside but within the country was, therefore 1.0.

Table 4.6: Respondent's houses outside the district but within the country

	Permanent		Semi-Permanent		Temporary	
Number of houses	Freq	Perc	Freq	Perc	Freq	Perc
1	5	71.4	9	100.0	6	100.0
3	1	14.3				
6	1	14.3				
Total	7	100.0	9	100.0	6	100.0

A summary of the houses by type by location is provided in Table 4.7

Table 4.7:Summary of location of respondents' houses

	Permanent		Semi-Permanent		Temporary		Total	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
In the village	85	28%	217	48%	218	62%	520	47%
In the Sub-county	37	12%	33	7%	27	8%	97	9%
In the District	45	15%	62	14%	28	8%	135	12%
In other Districts	127	42%	129	29%	71	20%	327	30%
Outside the District but within the Country	7	2%	9	2%	6	2%	22	2%
Total	301	100%	450	100%	350	100%	1101	100%

5. ASSET OWNERSHIP

Land Ownership and Usage

Most of the respondents (60.7%) reported that they owned land (Table 5.1). The mean size of the land owned was 4.78 acres but most respondents owned such little land that they could only use it for construction.

Table 5.1: Respondents who owned land

	Frequency	Percent
Yes	750	60.7
No	485	39.3
Total	1235	100.0

The land owned by the respondents is utilized for different purpose. However, most of them rank food production as highest in terms of usage of the land by area (39.9%), followed by cash crops (7.2%) (Table 5.2). Priority given to livestock grazing (1.7%) and other land uses (1.2%) was very minimal and only 6.9%.of the respondents had any of their land unused.

Table 5.2: Respondents' ranking of the different uses of land

Rank	Cash crops		Food crops		Livestock grazing		Other uses		Unused land	
	No	%	No	%	No	%	No	%	No	%
1	89	7.2	493	39.9	21	1.7	15	1.2	85	6.9
2	54	4.4	81	6.6	61	4.9	17	1.4	51	4.1
3	4	.3	14	1.1	24	1.9	10	.8	17	1.4
4	2	.2	10	.8	5	.4	3		7	.6
5	--	--	3	.2	1	.1	45	.2	2	.2
6	--	--	1	.1	--	--			--	--
Total	149	12.1	602	48.7	112	9.1		3.6	162	13.1
Missing System	1,086	87.9	633	51.3	1,123	90.9	1,190	96.4	1,073	86.9
Total	1,235	100.0	1,235	100.0	1,235	100.0	1,235	100.0	1,235	100.0

Ownership of fishponds among the fisheries primary stakeholders was minimal (0.6% N=1235). Furthermore, none of the respondents, including the few who owned the ponds, reported practicing fish farming. This could be attributed to the lack of skills, limited access to pond resources and the large capital outlays needed to start up pond farming. It could also be an indication that fishing was still more paying than fish

farming, hence the lack of interest in fish farming among fisheries stakeholders. This shows, therefore, that fish farming is not a probable livelihood alternative among the fisheries stakeholders.

Ownership of animals and birds

Rearing of animals and birds was reported among the stakeholders, albeit on a small scale. Most respondents owned chickens and ducks (50%) followed by those who owned goats and sheep (34.7%) and cattle (25%). Donkeys are the least commonly owned by the stakeholders (0.5%) (Table 5.3).

Table 5.3: Respondents reporting ownership of animals and birds

	Cattle		Goats and sheep		Chickens and ducks		Pigs		Donkeys	
	N	%	N	%	N	%	N	%	N	%
Respondents owning	309	25.0	428	34.7	617	50.0	166	13.4	6	.5
Respondents not owning	926	75.0	807	65.3	618	50.0	1069	86.6	1229	99.5
Total	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0

Concerning the numbers of animals and birds, some respondents had difficulties keeping records of them, particularly birds and ducks. This was because most of the animals and birds were kept back in the home villages, sub-counties or districts rather than at the beaches of work. However, the data revealed that birds and ducks formed the highest number for the respondents interviewed, with a sum of 8,4620 and an average of 13.17 per person (Table 5.4). Goats and sheep followed, with a sum of 1,652 and average of 3.86 and cattle, with sum of 1,157 and mean of 3.74.

Table 5.4: numbers of animals and birds owned by respondents

	N	Sum	Mean
Number of cattle owned	309	1,157	3.74
Number of goats and sheep owned	428	1,652	3.86
Number of chickens and ducks owned	617	8,462	13.71
Number of pigs owned	166	483	2.91
Number of donkeys owned	6	8	1.33

The distribution of the ownership of the animals is generally even, with most respondents owning 3 or less units, except for the chickens and ducks, where the majority owned 5 birds (14.4%). The low level of animal rearing was attributed to the

emphasis on fishery activities among the stakeholders and the lack of grazing land. Of the total number of respondents, 13.4% owned pigs, who were mainly females with 4.0% having a pig each and 5.1% having two pigs while the others had more than 2.

Ownership of bicycles and vehicles

Majority of the respondents owned bicycles (42%), followed by those who owned motorcycles (3.5%) and lastly, vehicles (1.4%) (Table 5.5).

Bicycle seemed to be an important household property with 37.8% of the respondents owning one bicycle and 3.3% owning two (Table 5.5). However bicycle ownership was mainly among the traders and the boat owners, while very few crew members owned them. The distribution of motorcycles was that only 3.2% of respondents owned one and 0.3% had two. These were also mainly the traders who used the motorcycles to transport fish to the different markets.

Very few respondents owned vehicles (1.4%) with only 1.3% owning a vehicle. This was attributed to the poor accessibility of the landing sites, poor road network and the low income levels within and around the landing sites.

Table 5.5: Bicycles, motorcycles and vehicles owned by respondents

	Bicycles		Motorcycles		Vehicles	
Number	N	%	N	%	N	%
Valid 1	467	37.8	40	3.2	16	1.3
2	41	3.3	3	.2	--	--
3	8	.6	--	--	1	.1
4	3	.2	--	--	--	--
Total	519	42.0	43	3.5	17	1.4
Missing System	716	58.0	1,192	96.5	1,218	98.6
Total	1,235	100.0	1235	100.0	1,235	100.0

The sum of bicycles reported by respondents was also highest (585) with a mean of 1.13 bicycles per respondent (Table 5.6), followed by motorcycles. Vehicles were, on the other hand, counted at only 19, with a mean of 1.12.

Table 5.6: Number of bicycles, motorcycles and vehicles owned

	N	Sum	Mean
Bicycles	519	585	1.13
Motorcycles	43	46	1.07
Vehicles	17	19	1.12

Bedding and cooking facilities

The survey sought to identify what the respondents slept on. Generally, majority of the respondents had sleeping facilities. Most of the respondents were sleeping on both bed and mattress (67.9%) (Table 5.7). However, some of the beds and mattresses were shared betweens individuals.

A sizable number of them were, however, sleeping on papyrus mats (12.4%) and the reasons forwarded were that most of them did not have their properties at the beaches while others had low incomes that did not allow for such expenditures.

Table 5.7: What respondents slept on at home

	Frequency	Percent	Valid Percent
Papyrus mat	153	12.4	12.4
Mattress alone	232	18.8	18.9
Bed plus mattress	839	67.9	68.2
Other	6	.5	.5
Total	1,230	99.6	100.0
Missing System	5	.4	
Total	1,235	100.0	

With respect to the fuel used for cooking, the majority of the respondents (57.7%) used firewood as their main fuel, followed by charcoal, while just a few used paraffin, gas or electricity (Table 5.8). The implication of this is that significant damage could be exerted by the fisher communities on the country's forest resources, with consequences for soil degradation and siltation of Lake Victoria as a result of floods and erosion associated with it.

Table 5.8: Types of fuel used for cooking

	Frequency	Percent	Valid Percent
Firewood	712	57.7	58.4
Charcoal	416	33.7	34.1
Paraffin	12	1.0	1.0
Gas	1	.1	.1
Electricity	4	.3	.3
Other	74	6.0	6.1
Total	1,219	98.7	100.0
Missing System	16	1.3	
Total	1,235	100.0	

Financial Assets

The survey examined the financial assets of the stakeholders by providing data on whether they had bank accounts or not or whether they needed any assistance in that respect. Very few of the respondents (9.5%) reported having bank accounts (Table 5.9). The low levels were found across all the stakeholder groups, with the boat owners taking a marginal lead while the crew members showing the least coverage. The low saving reflects the little concern the stakeholders attach to their future. The explanation given were that many of them got little incomes just enough to cater for their current requirements; for others, there was no incentive for saving while some were simply ignorant about the banking opportunities available to the fishermen.

Table 5.9: Respondents with bank accounts.

	Categories of Stakeholders									
	Boat owners		Crew members		Fish processor or traders		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Respondents with accounts	45	12.6%	16	4.6%	36	10.5%	20	10.8%	117	9.5%
Respondents without accounts	311	87.4%	330	95.4%	306	89.5%	165	89.2%	1112	90.5%
Total	356	100.0%	346	100.0%	342	100.0%	185	100.0%	1,229	100.0%

With respect to the location where the bank accounts were maintained, the majority (4.5%) of all the respondents held them in banks in other districts rather than the districts where they did their fishing businesses (Table 5.10). Some 2.6% had their accounts in the same district but outside the sub-counties where they worked and only 0.7% had theirs in the same village. Some 0.1% had theirs in different countries.

Table 5.10: Location of respondents' bank accounts.

	Frequency	Percent	Valid Percent	Cumulative Percent
Within this village	9	.7	7.8	7.8
Another village nearby	18	1.5	15.5	23.3
This Sub-county	1	.1	.9	24.1
This District	32	2.6	27.6	51.7
Other District	55	4.5	47.4	99.1
Other Country	1	.1	.9	100.0
Total	116	9.4	100.0	
Missing System	1,119	90.6		
Total	1,235	100.0		

Availability of a savings scheme operated outside of a bank to which respondents could have access was examined. The data showed that saving schemes were not common a feature within the fisher communities. The majority of the respondents interviewed (82.7%) reported that there were no such schemes around their beaches (Table 5.11). They mentioned the lack of trust for one another as a hindrance to forming such schemes. Rather than form groups to save, they have made endless expenditures. They have also attributed the low saving levels to the lack of saving culture among the stakeholders.

Table 5.11: Availability of a savings scheme

	Frequency	Percent
Yes	214	17.3
No	1021	82.7
Total	1235	100.0

Whether they belonged to the few existing saving schemes, most of the respondents (87.2%) reported that they did not (Table 5.12). This again re-enforces the suggestion that there was lack of a saving culture among the stakeholders.

Table 5.12: Respondents who belonged to saving schemes

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	158	12.8	12.8	12.8
No	1,076	87.1	87.2	100.0
Total	1,234	99.9	100.0	
Missing System	1	.1		
Total	1,235	100.0		

Most of the saving schemes operated outside of the banks to which respondents had access were run by the local people for themselves (42.0%), followed by those run by NGOs and other financing institutions (Table 5.13).

Table 5.13: Types of savings scheme

	Frequency	Percent	Valid Percent	Cumulative Percent
Run by local people for themselves	136	11.0	42.0	42.0
NGOs	29	2.3	9.0	50.9
Other financing institutions	25	2.0	7.7	58.6
Not applicable	134	10.9	41.4	100.0
Total	324	26.2	100.0	
Missing System	911	73.8		
Total	1,235	100.0		

For those not yet using the schemes, a slight majority (56.4%) agreed that they would use such a scheme if it were available (Table 5.14). However, a large proportion (43.6%) would still not use it to save, further reflecting the low saving culture among the fisheries stakeholders.

Table 5.14: Respondents not yet saving but who would use such a scheme if it were available

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	697	56.4	56.4	56.4
No	538	43.6	43.6	100.0
Total	1235	100.0	100.0	

6. LIVELIHOOD, HEALTH AND CONSUMPTION STATUS

Overall livelihood activities

The survey examined which income-earning activities the stakeholders were involved, for how many months in a year and a ranking of their contribution to household incomes. This would provide an indication of the possible alternative sources of livelihood for the fisheries stakeholders.

The data revealed that the activities where people were heavily involved, given by the N values, were fishing employment (N=414), fishing income from boats and gear owned (N=399), fish trading and processing (N=359) and farming of crops and horticulture (N=239) (Table 6.11). Respondents were least involved with remittances, non-fishing employment and rental incomes.

The average number of months an activity contributes to household income was highest for rental income (11.31), fishing income from boats and gear (9.84), fishing employment (9.63) and fish trading and processing (9.48). Except for rental income, therefore, the stakeholders spent more of their time on fishery related activities rather than other activities.

Table 6.1: Mean number of months the activity contributes to household income in a year

Activities	N	Mean Months
Fishing income from boats and gear owned	399	9.84
Fishing employment (wages and salaries)	414	9.63
Fish trading and processing	359	9.48
Net making and repairing	76	8.26
Boat building and repairing	58	9.40
Non-fishing employment	13	6.31
Trading in other food commodities	79	7.08
Trading in non-food items	36	7.81
Farming (crops and horticulture)	239	5.99
Livestock farming	55	7.64
Remittances or transfer payments	11	7.73
Rental income	16	11.31
Other incomes	94	9.29

The data also showed that fishing employment (33.6%) and fishing income from boats and gear (32.1%) emerged closely as the greatest ranked contributors to household incomes (Table 6.2). Transfer payments, non-fishing employment and rental incomes were among the least ranked contributors to household incomes.

The implication of these results is that there is need for policy to encourage fisheries stakeholders to participate more in activities not directly related to fishing as well as non-fisheries livelihood activities. This would relieve the pressure on the fish stocks.

Table 6.2: Respondents' ranking of the different livelihood alternatives

Ranking	Fishing income from boats and gear		Fishing employment		Fish trading and processing		Net making and repairing		Boat building and repairing		Non-fishing employment		Trading in other food commodities	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
Valid 1	343	27.8	349	28.3	301	24.4	8	.6	60	4.9	56	4.5	4	.3
2	48	3.9	53	4.3	42	3.4	58	4.7	10	.8	4	.3	6	.5
3	3	.2	8	.6	8	.6	10	.8	2	.2	--	--	1	.1
4	2	.2	3	.2	1	.1	1	.1	--	--	--	--	--	--
5			--	--	1	.1	2	.2	--	--	--	--	--	--
6	--	--	1	.1	--	--	--	--	1	.1	--	--	--	--
9	--	--	1	.1	--	--	--	--			--	--	--	--
Total	396	32.1	415	33.6	353	28.6	79	6.4	73	5.9	60	4.9	11	.9
Missing System	839	67.9	820	66.4	882	71.4	1156	93.6	1162	94.1	1175	95.1	1224	99.1
Total	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0

Table 6.2 (cont)

Ranking	Trading in non-food items		Farming (crop & horticulture)		Livestock farming		Transfer payments		Rental income		Other income	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
Valid 1	3	.2	53	4.3	7	.6	2	.2	1	.1	43	3.5
2	25	2.0	164	13.3	30	2.4	4	.3	8	.6	43	3.5
3	7	.6	22	1.8	12	1.0	3	.2	5	.4	13	1.1
4	--	--	3	.2	3	.2	1	.1	2	.2	--	--
5	--	--	--	--	2	.2	--	--	1	.1	--	--
6	--	--	--	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--	--	--	--
Total	35	2.8	242	19.6	54	4.4	10	.8	17	1.4	99	8.0
Missing System	1200	97.2	993	80.4	1181	95.6	1225	99.2	1218	98.6	1136	92.0
Total	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0	1235	100.0

Health Status

The survey examined how many members of the households suffered from the different diseases in the last year. The data revealed that most respondents reported that their households suffered from malaria (N=918), followed by diarrhoea (N=467) (Table 6.3). Few respondents reported cases of cholera during the year.

Malaria was suffered by the highest mean number of persons in the households (4.07), followed by diarrhoea (2.53). Other diseases suffered by many persons per household were cholera, typhoid and HIV/AIDS.

Table 6.3: Number of persons in the household who suffered infection in the last year

	N	Mean
Malaria	918	4.07
Bilharzias	236	1.92
Tuberculosis	130	1.81
Convulsions	260	1.83
HIV/AIDS	130	1.95
Diarrhea	467	2.53
Typhoid	213	2.00
Cholera	84	2.30

The average size of households was 6.11.

Drinking water

For most respondents, the main source of drinking water at home was the lake (49.3%) of respondents (table xx). Piped water, shallow wells and springs or rivers were among the sources that followed closely. There were also several unclassified sources reported, mostly mineral water packed in plastic bags or bottles. The reason for use of packed water was that they did not have time to boil their own drinking water, or they mainly took water while having their meals at the restaurant which also provided drinking water as well. Others did not trust other water sources like the piped water and the lake.

The danger of over-relying on the lake as a source of drinking water was that it exposed the people to all the water borne diseases, as mention in Table 6.4 above.

Table 6.4: The main source of drinking water for use at home

Sources	Frequency	Percent
Lake	609	49.3
Shallow well	112	9.1
Piped/tap	129	10.4
Spring/river	111	9.0
Other	274	22.2
Total	1,235	100.0

Toilet facilities

Toilets are among the major health facilities every household ought to have. Majority of the respondents sampled had latrines at the house where they stayed (61.1%) (Table 6.5). However, the quality of these latrines would also be important. Most of the latrines were constructed using local materials such as poles and grass and were not deep, which meant that they did not often meet the minimum required standards.

Table 6.5: Respondents who had a latrine at the house where they stay

	Frequency	Percent
Yes	754	61.1
No	481	38.9
Total	1235	100.0

Respondents who had no latrines at home reportedly went to the bush (47%) or used public toilets (39.2%) (Table 6.6). Contrary to what people believe about fishers, very small proportion acknowledged going to the lake as the main practice.

Table 6.6: Where respondents who had no latrines went

	Frequency	Percent	Valid Percent	Cumulative Percent
Public toilet	218	17.7	39.2	39.2
Neighbour's latrine	42	3.4	7.6	46.8
The lake	1	.1	.2	46.9
The bush	263	21.3	47.3	94.2
Other	32	2.6	5.8	100.0
Total	556	45.0	100.0	
Missing System	679	55.0		
Total	1235	100.0		

Food consumption

The survey sought to assess the food status among the stakeholders, examining how often they and their households got enough food to eat, how many meals they ate in a day, their main staple foods and their fish consumption preferences.

Asked how often they and their households got enough food to eat, most respondents (59.7%) reported that they always had enough to eat (Table 6.7). Only an insignificant proportion (0.1%) reported that they never had enough food. A sense of food adequacy among the stakeholders was, therefore, revealed by the data.

Table 6.7: How often the respondents and their households got enough food to eat

	Frequency	Percent	Valid Percent	Cumulative Percent
Always	737	59.7	60.2	60.2
Most of the time	230	18.6	18.8	78.9
Some of the time	216	17.5	17.6	96.6
Infrequently	41	3.3	3.3	99.9
Never	1	0.1	0.1	100.0
Total	1225	99.2	100.0	
Missing System	10	0.8		
Total	1235	100.0		

Concerning the usual number of meals eaten in the household in a day, most of the respondents reported that it was twice (46.7%), followed by those who had three meals a day (41.9%) (Table 6.8). There was also a proportion with just one meal a day.

Table 6.8: The usual number of meals eaten in respondents' households in a day

No. of meals	Frequency	Percent	Valid Percent	Cumulative Percent
1	91	7.4	7.5	7.5
2	577	46.7	47.3	54.7
3	517	41.9	42.3	97.1
4	36	2.9	2.9	100.0
Total	1221	98.9	100.0	
Missing System	14	1.1		
Total	1235	100.0		

The main staple foods of the respondents were also examined. The data showed that maize was the main staple food (30.9%), followed by cassava (26.6%) and sweet potatoes (20.2%) (Chart 6.1). Proteinous foods like millet and sorghum were the least consumed by the fishing communities. The main staple foods consumed by majority of the respondents were, therefore, starchy and this could explain why the fishing communities were sometimes malnourished, because they tended to consume unbalanced foods with a lot of carbohydrate content.

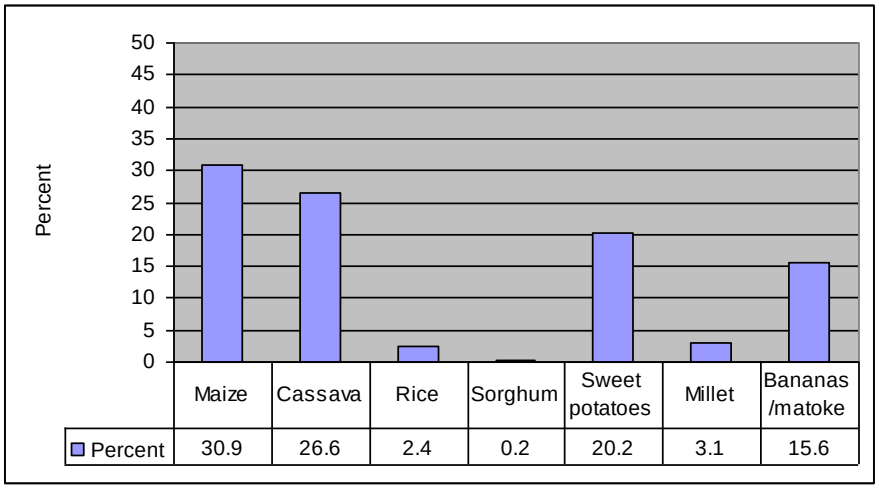


Chart 6.1: Respondents' main staple food in their households

The second staple food mentioned was sweet potatoes (33.0%), followed by cassava (24.7%) and maize (20.3%) (Chart 6.2).

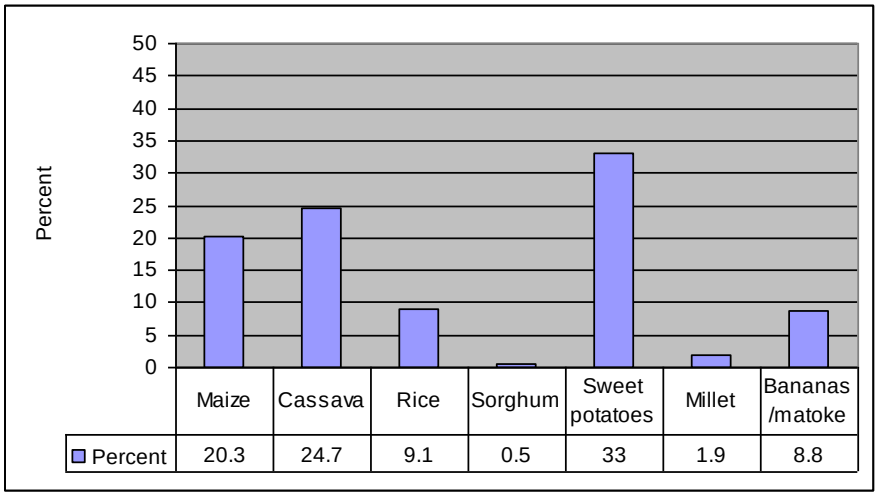


Chart 6.2: Respondents' second staple food in their households

A variety of sauces consumed by the households were reported but by far the main one was fish (79.9%) (Table 6.9). Other types of sauces were consumed on limited levels. The ready availability and affordability of fish at the beaches seems to be a major factor in the high consumption of fish. In terms of a balanced diet, the consumption of beans/legumes, beef, chicken and vegetables, all of which were reported on small levels, need to be promoted among the fisheries stakeholders.

Table 6.9: The main sauces in the households

	Frequency	Percent	Valid Percent	Cumulative Percent
Chicken	17	1.4	1.4	1.4
Beef	45	3.6	3.7	5.1
Fish	987	79.9	80.8	85.8
Vegetables	52	4.2	4.3	90.1
Beans/legumes	114	9.2	9.3	99.4
All of the above	1	.1	.1	99.5
Other	6	.5	.5	100.0
Total	1222	98.9	100.0	
Missing System	13	1.1		
Total	1235	100.0		

The second sauces reported were beans/legumes (43.4%), followed by vegetables (24.9%) and beef (14.7%) (Table 6.10).

Table 6.10: The second sauces in the households

	Frequency	Percent	Valid Percent	Cumulative Percent
Chicken	14	1.1	1.2	1.2
Beef	182	14.7	15.0	16.2
Fish	140	11.3	11.5	27.7
Vegetables	302	24.5	24.9	52.6
Beans/legumes	536	43.4	44.2	96.8
All of the above	5	.4	.4	97.2
Other	34	2.8	2.8	100.0
Total	1213	98.2	100.0	
Missing System	22	1.8		
Total	1235	100.0		

The survey also set out to assess the consumption patterns of the different types of fish within the fishing communities sampled. The results revealed tilapia was the fish eaten most often (73.5%), followed by Nile perch (19.3%) (Table 6.11). The happlochromines were the

least often consumed at the beaches (0.3%). Many reasons were advanced for frequently consuming tilapia, including ready availability and low prices as compared to other fish types, particularly Nile perch.

Table 6.11: Fish species eaten most often

	Frequency	Percent	Valid Percent	Cumulative Percent
Nile perch	238	19.3	19.5	19.5
Tilapia	908	73.5	74.4	93.9
Mukene	57	4.6	4.7	98.6
Happlochromines	4	.3	.3	98.9
Others	13	1.1	1.1	100.0
Total	1220	98.8	100.0	
Missing System	15	1.2		
Total	1235	100.0		

With respect to the preferences of the stakeholders, the majority again preferred tilapia (69.4%), followed by Nile perch (19.9%). There was little preference for the happlochromines or mukene (6.12).

Table 6.12: Fish species the respondents liked best

	Frequency	Percent	Valid Percent	Cumulative Percent
Nile perch	246	19.9	20.3	20.3
Tilapia	857	69.4	70.8	91.1
Mukene	25	2.0	2.1	93.1
Happlochromines	9	.7	.7	93.9
Others	74	6.0	6.1	100.0
Total	1211	98.1	100.0	
Missing System	24	1.9		
Total	1235	100.0		

In making their preferences for the different types of fish, the respondents considered whether the fish was sweet (38.5%), followed by easily available (31.6%) and more nutritious (15.7%) as compared to other fish species (Table 6.13).

Table 6.13: Why the fish was liked best

	Frequency	Percent	Valid Percent	Cumulative Percent
Fish is easily available	390	31.6	32.3	32.3
Fish is cheap	96	7.8	7.9	40.2
Fish is sweet	476	38.5	39.4	79.6
More nutritious	194	15.7	16.0	95.6
Other	53	4.3	4.4	100.0
Total	1209	97.9	100.0	
Missing System	26	2.1		
Total	1235	100.0		

The state of fish most liked was also examined. The data revealed that the most liked fish state was fresh (76.4%), followed by the smoked form (10.5%) (Table 6.14). Generally, the salted form of fish was not preferred (0.2%)

Table 6.14: In what state respondents most liked to eat fish

	Frequency	Percent	Valid Percent	Cumulative Percent
Fresh	944	76.4	77.6	77.6
Smoked	130	10.5	10.7	88.2
Sun-dried	23	1.9	1.9	90.1
Fried	93	7.5	7.6	97.8
Salted	3	.2	.2	98.0
Other	24	1.9	2.0	100.0
Total	1217	98.5	100.0	
Missing System	18	1.5		
Total	1235	100.0		

The state of fish actually eaten most was also examined. The data revealed that most respondents actually ate the fresh form of fish (76.2%), followed by the smoked fish (10.0%) Table 6.15). This shows that the respondents were able to eat fish in the forms they preferred, i.e. eat what they wanted to eat.

Table 6.15: What state of fish respondents ate most

	Frequency	Percent	Valid Percent	Cumulative Percent
Fresh	941	76.2	77.8	77.8
Smoked	123	10.0	10.2	88.0
Sun-dried	30	2.4	2.5	90.5
Fried	82	6.6	6.8	97.3
Salted	2	.2	.2	97.4
Other	31	2.5	2.6	100.0
Total	1209	97.9	100.0	
Missing System	26	2.1		
Total	1235	100.0		

Concerning the reasons why they ate the fish in the forms they ate them, the respondents reported that these were whether the fish was sweet (33.3%), easily available (30.4%) or more nutritious (20.9%). However, just 0.4% of the respondents reported that they liked the state of fish most because it could be bought in small units (Table 6.16).

Table 6.16: The best reason why respondents liked fish in this state

	Frequency	Percent	Valid Percent	Cumulative Percent
Fish is easily available	376	30.4	30.9	30.9
Fish is cheap	78	6.3	6.4	37.3
Fish is sweet	411	33.3	33.8	71.1
More nutritious	258	20.9	21.2	92.4
Can be bought in small units	5	.4	.4	92.8
Other	88	7.1	7.2	100.0
Total	1216	98.5	100.0	
Missing System	19	1.5		
Total	1235	100.0		

The frequency with which fish was eaten in a week was examined. The data showed that the average number of days respondents ate fish in a week was 4.44 days. The majority of the

respondents ate fish 7 days a week (24.9%), followed by 4 days (22.1%) and 3 days (21.3%) (Table 6.17).

Table 6.17: Number of days respondents usually ate fish in a week

Days a week	Frequency	Percent	Valid Percent	Cumulative Percent
1	39	3.2	4.0	4.0
2	98	7.9	10.1	14.1
3	207	16.8	21.3	35.4
4	215	17.4	22.1	57.5
5	116	9.4	11.9	69.4
6	55	4.5	5.7	75.1
7	242	19.6	24.9	100.0
Total	972	78.7	100.0	
Missing System	263	21.3		
Total	1235	100.0		

7. INFORMATION, COMMUNICATION AND OUTREACH

The survey sought to examine the access to radios, TV and newspapers and their utilization among the fisheries stakeholders and the possibilities of delivering fisheries messages through these media.

Asked whether they owned radios, the majority reported owning them (73%) (Chart 7.1). The large ownership of radios is considered a positive factor in the use of radios in disseminating fisheries information.

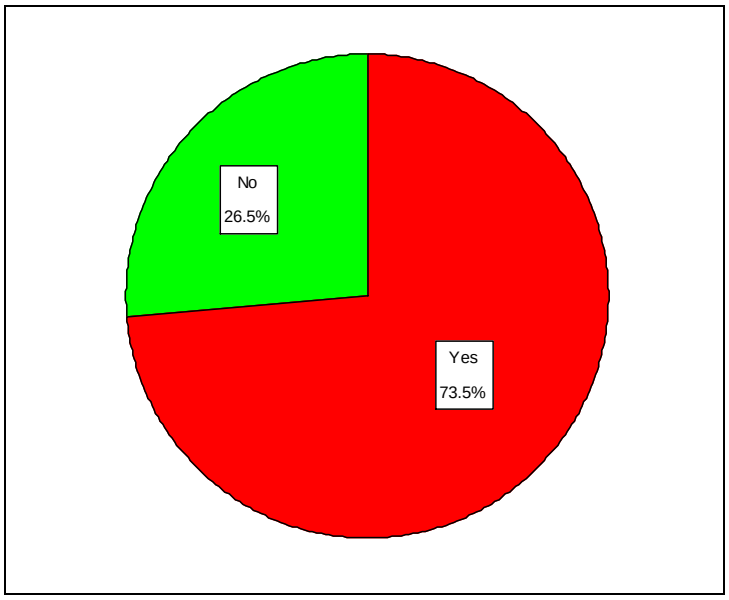


Chart 7.1: Respondents who owned a radio

The extent to which they listened to the radios was also investigated. Most respondents (64%) reported listening to the radio every day. However, there were also some (17%) who listened only occasionally and others who never listened (Chart 7.2). Some of the people who owned radios could not listen daily because of busy schedules of work while some of those who did not own radios were still able to listen from neighbours or from public places like bars and restaurants. While ownership of radios should be encouraged, listening from public places is also important.

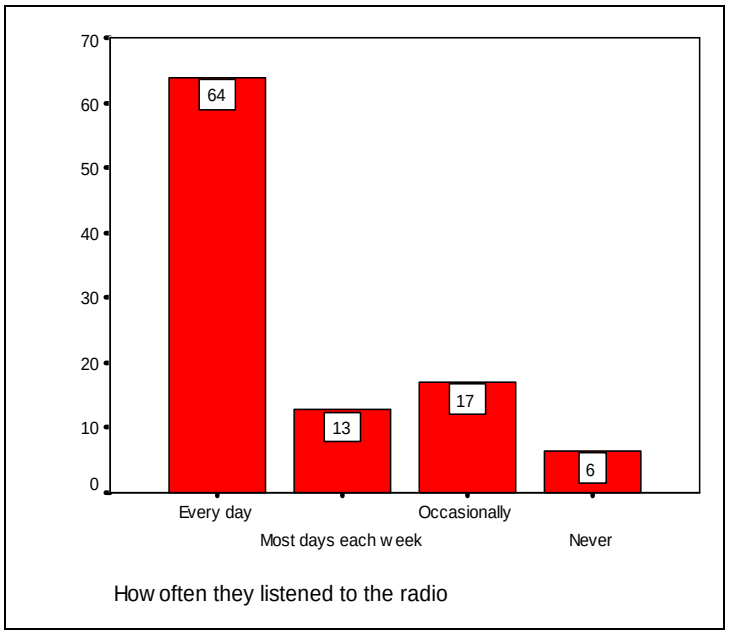


Chart 7.2: Frequency of listening to the radio

With respect to the time of listening, most of those who listened to the radio did so in the early evening (30.3%), followed by all day (26.6%) (Table 7.1). Few people listened to the radio late in the night.

Table 7.1: What time of day they usually listened to the radio

	Frequency	Percent
All day	308	26.6
Morning hours	171	14.7
Lunch time	102	8.8
Afternoon	122	10.5
Early evening	351	30.3
Late at night	106	9.1
Total	1160	100.0

Several radios were available to the stakeholders. However, the majority liked to listen to Radio CBS (33.4%), followed by Radio Simba (18.9%) and NBS (17.5%) (Table 7.2).

Table 7.2: Which radio stations they liked listening to most

	Frequency	Percent
Simba	220	18.9
Kaboozi	51	4.4
CBS	390	33.4
Buddu	46	3.9
Dembe FM	14	1.2
Capital	13	1.1
Kiira FM	28	2.4
NBS	204	17.5
Open Gate	9	.8
Rock Mambo	36	3.1
East African FM	1	.1
Others	154	13.2
Total	1166	100.0

Concerning radio reception, most respondents (95.4%) reported that they could receive their most listened to radio signal clearly and all the time.

Several languages were spoken on the various radios. However, the most common language on the preferred radio stations was Luganda (73.5%), followed by Lusoga (18.9%) (Table 7.3).

Table 7.3: Language most used on the preferred radio station

	Frequency	Percent
Kiswahili	16	1.4
Dholuo	1	.1
English	43	3.7
Luhya	1	.1
Luganda	854	73.5
Lusoga	220	18.9
Other	27	2.3
Total	1162	100.0

With respect to programmes about fisheries, most respondents (72.2%) reported that they had ever heard them on radio (Chart 7.3).

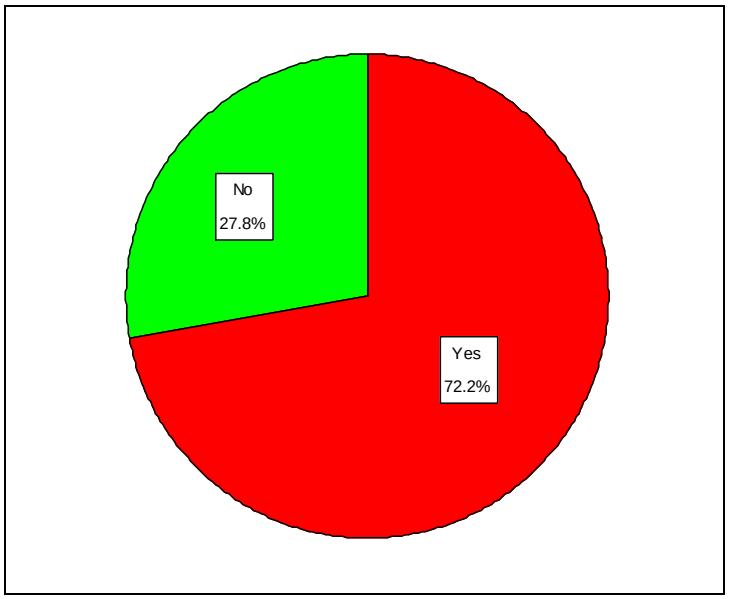


Chart 7.3: Respondents who ever heard fisheries programmes on radio

Different preferences were shown with respect to the appropriate times to receive information on fisheries on the radio. However, the majority preferred the early evening (43.9%), followed by morning hours (16.4%) (Table 7.4).

Table 7.4: Time preferred to receive information on fisheries on the radio

	Frequency	Percent
All day	30	2.6
Morning hours	192	16.4
Lunch time	118	10.1
Afternoon	149	12.7
Early evening	515	43.9
Late at night	170	14.5
Total	1174	100.0
System	61	
	1235	

Ownership of TVs among the stakeholders was examined. However, unlike the radio, most respondents reported not owning TVs (89.6%) (Chart 7.4). The difficulty of owning a TV in the rural setting of a beach was understood. Cost of a TV and lack of electricity were some of the contributing factors.

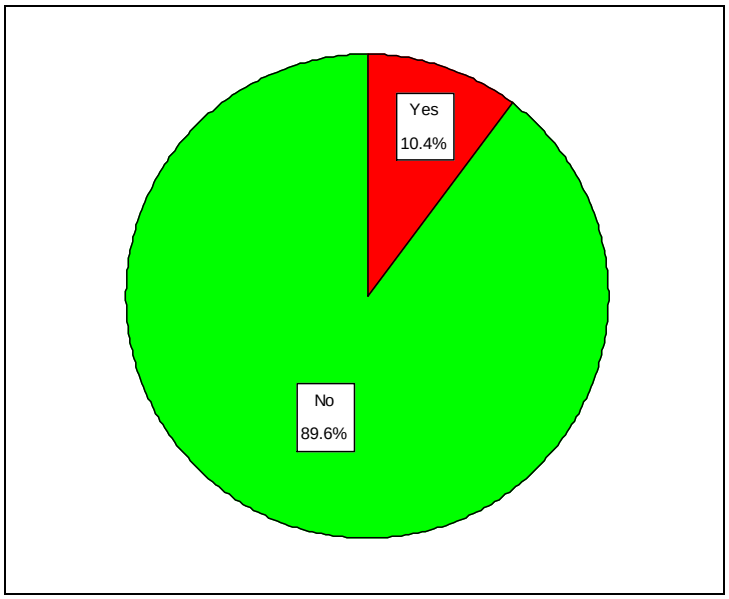


Chart 7.4: Respondents who owned TV's

Similarly, with respect to watching TV, the majority said they never watched (62%), with 30% reporting that they watched occasionally while only 3% watched every day (Chart 7.5). The implication is that the TV is still not the most effective method of conveying information to fisheries stakeholders, due to its limited access.

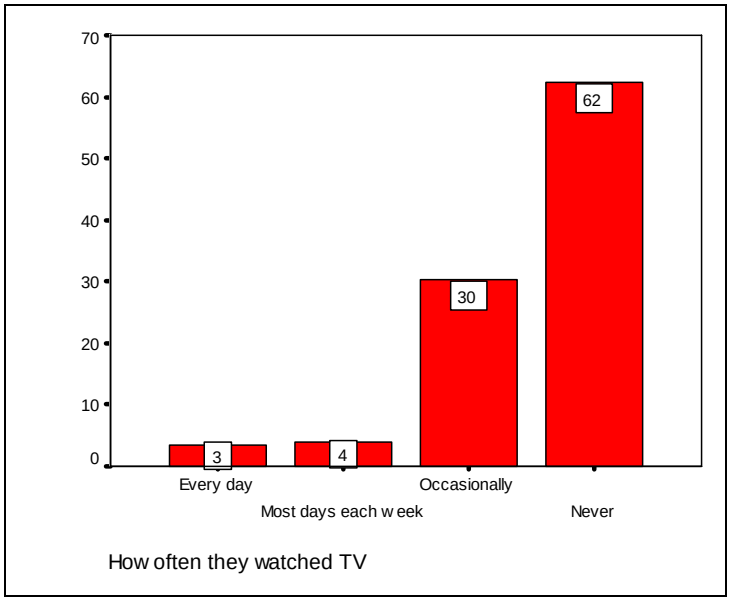


Chart 7.5: Frequency of TV watching

Concerning newspapers, the majority of the respondents never read them (64%), some read them occasionally (31%) while only a few reportedly read them every day (2%) (Chart 7.6).

This is attributed to illiteracy as well as lack of newspapers at the beaches. As a result, newspapers are also not an effective medium for conveying fisheries information.

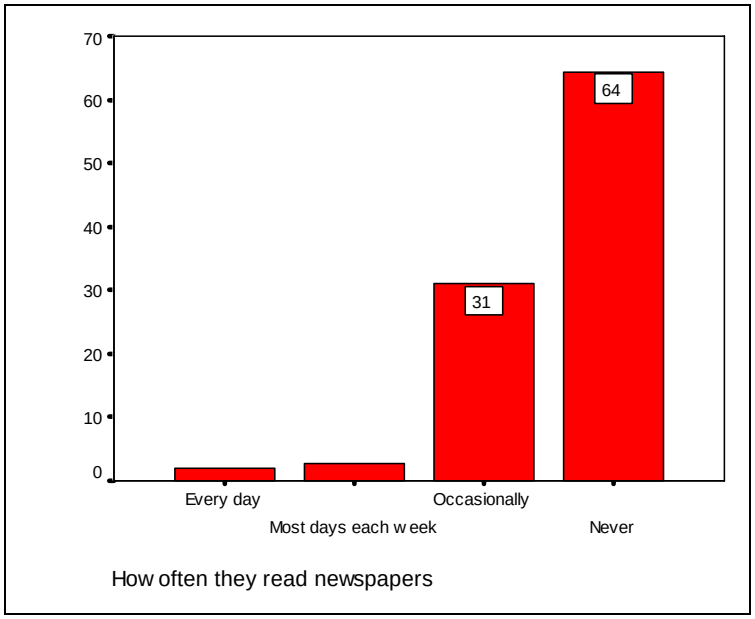


Chart 7.6: Frequency of reading newspapers

The best media preferred by respondents for getting fisheries information to them were the radio (57%), followed by meetings/barazas (36%) (Chart 7.7). The least preferred methods were the brochure (1.3%), billboards (1.4%) and TV (1.6%).

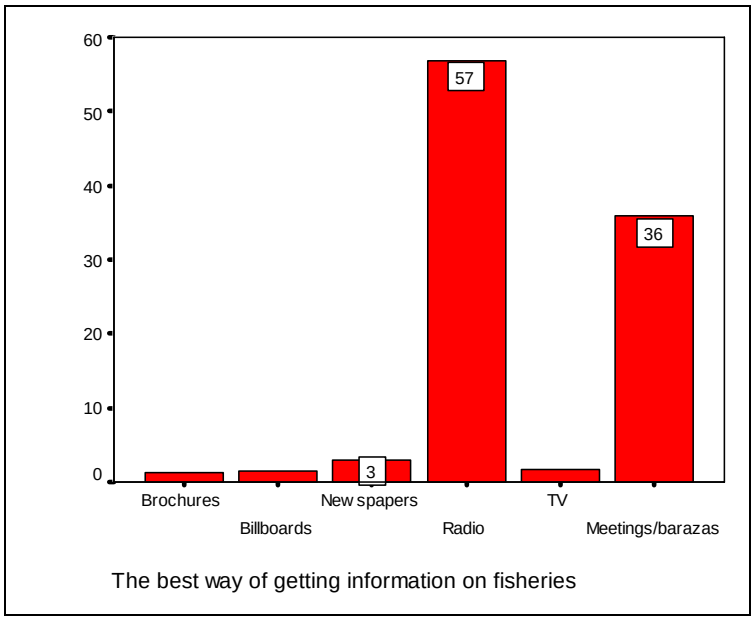


Chart 7.7: Preferred media for fisheries information

8. FISHERIES MANAGEMENT

The survey examined the presence of Fisheries Officers at the beaches through residence or visits of these officers to the beaches. This was to assess the level of support provided to the stakeholders in the management of their resource. The majority (78.9%) reported that they had a Fisheries Officer at the landing site (Chart 8.1). However, apart from Fisheries Officers, there were lower categories of fisheries staff operating at the beaches, providing field support to the Fisheries Officers.

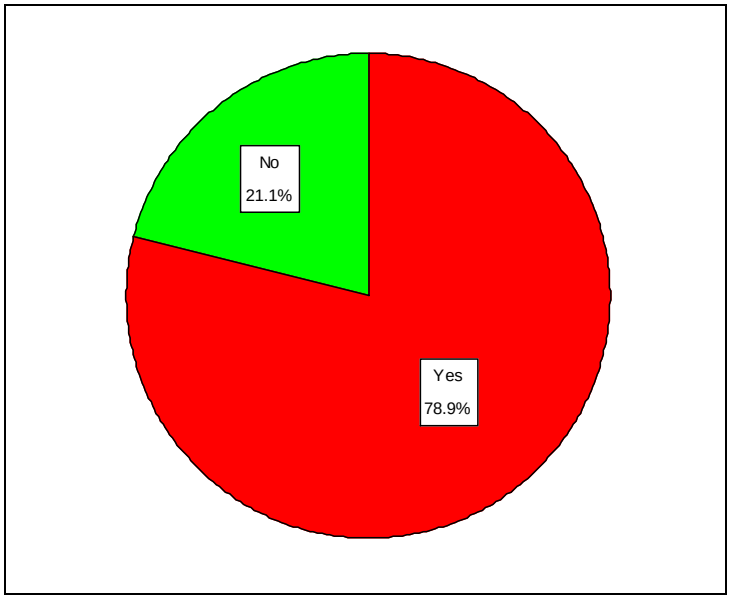


Chart 8.1: Presence of a Fisheries Officer at the landing site

With respect to visits over the last one year, most respondents reported that the Fisheries Officer visited their beaches weekly (31%), followed by those who said he/she visited monthly (21%) (Chart 8.2). Some 14% of the respondents reported that the Fisheries Officer did not visit their beaches at all in the past one year.

For most respondents, therefore, there were frequent visits of the Fisheries Officers, which was good for supporting fisheries management.

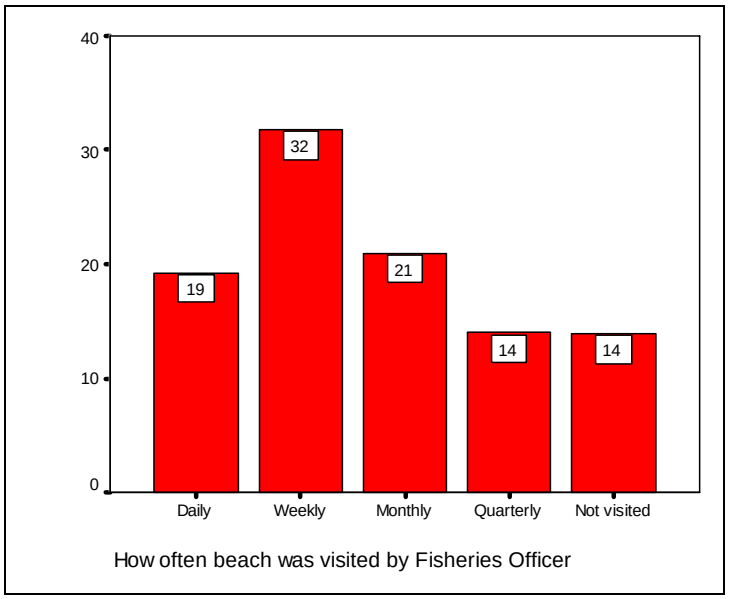


Chart 8.2: Frequency of visits by the Fisheries Officer

Concerning whether the stakeholders had ever been provided with any information on fisheries, the majority of the respondents (78.7%) said they had been provided with some information (Chart 8.3). This was an indication that Fisheries Officers were providing some outreach services to the stakeholders.

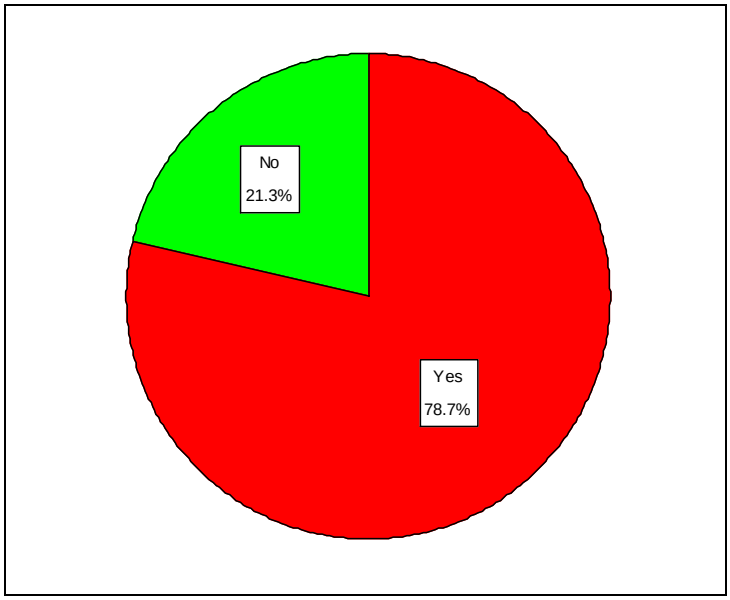


Chart 8.3: Respondents who have ever been provided with fisheries information

Respondents acknowledged receiving information on the different fisheries areas to different degrees. The information received most was on gears, methods and appropriate sizes of fish to harvest (81%), while fish business management was least (25%) (Chart 8.4).

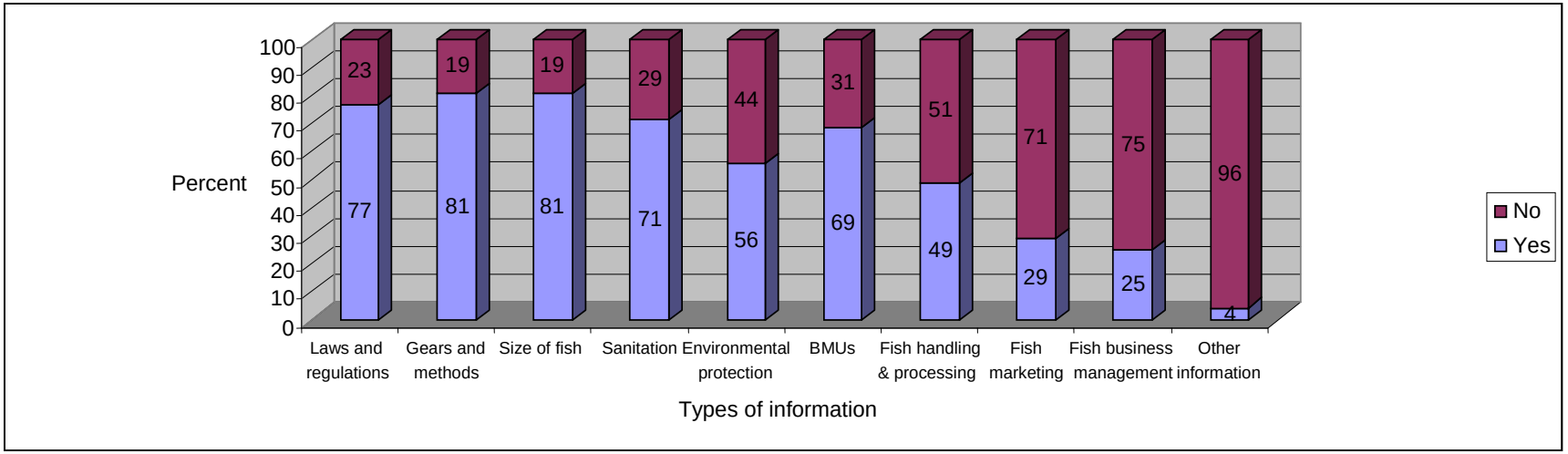


Chart 8.4: Respondents who have received information on the different areas

The survey examined the extent to which the stakeholders were organised for the purpose of effectively participating in fisheries management. Respondents were asked if they were members of a fishermen's or traders' organizations. The majority said they were not (76.9% N=1,235) (Chart 8.5). The explanation for this was that there were not many strong organizations at the beaches and a sense of individualism prevailed among the stakeholders. This was not a favourable factor for the development of the fisheries.

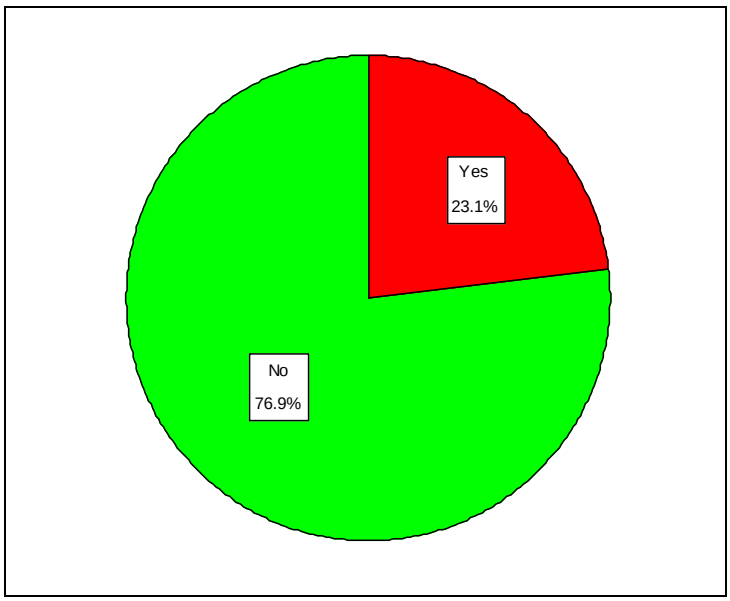


Chart 8.5: Respondents who were members of fishermen's or traders' organizations

The status of BMUs at the beaches was also examined. Most respondents reported that they had BMUs at their beaches (62.6% N=1,235) (Chart 8.6). The observation that some respondents did not report having BMUs was understandable because at the time of the survey, the process of establishing BMUs on Lake Victoria, Uganda was also still going on. Some of the beaches may have been covered under the survey before their BMU formation processes was completed.

Some respondents also did not understand the BMU arrangements well or did not belong to it. The evolving definition of a BMU, from the earlier forms of beach level organizations like Landing Management Committees (LMCs), Task Forces (TFs) and Gabunga Committees (GCs) could have created further complication in the minds of the respondents.

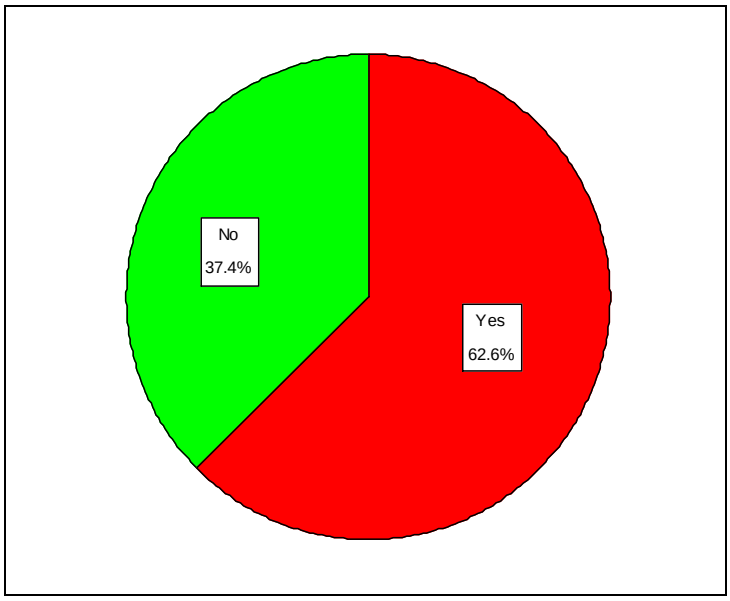


Chart 8.6: Respondents with a BMU at their beaches

Concerning the time when the BMUs were formed, most respondents (88.7%) reported that their BMUs were formed in 2005, followed by those whose BMUs were formed in 2004 (10.0%) (Table 8.1). Some individuals reported having their BMUs from earlier periods but this could be attributed to their interpretations of the concept of BMUs, where they could have included other forms of beach organizations as explained above.

Table 8.1: Year when the BMU was formed

Year	Frequency	Percent
1993	1	.1
1995	1	.1
1996	1	.1
2000	1	.1
2001	1	.1
2002	4	.5
2003	2	.2
2004	80	10.0
2005	711	88.8
Total	802	100.0

Concerning the membership of BMUs, most of the respondents (72.5% N=1,235) said they were not members (Chart 8.7). This could have been attributed to the lack of understanding of membership within BMUs. Many stakeholders believed they registered with the BMUs

simply for the purpose of voting, after which they would have no further involvement with the BMUs. There was, therefore, need for membership to the BMUs to be fully understood by the stakeholders, if they were to play their roles effectively as members.

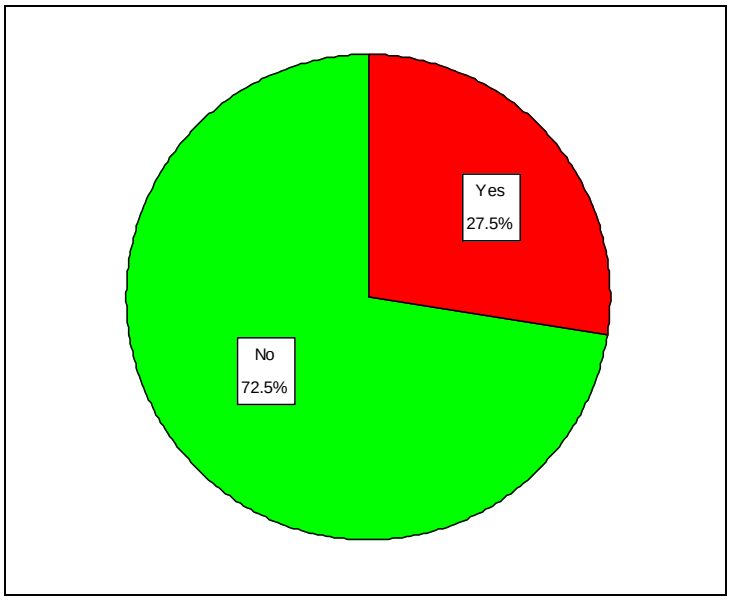


Chart 8.7: Respondents who were members of BMUs

Attendance of members to BMU assembly meetings was examined. Most respondents attended only 2 such meetings over the last year (33% N=313) Chart 8.8), followed by those who attended 1 meeting. Poor attendance of meetings could weaken the BMUs.

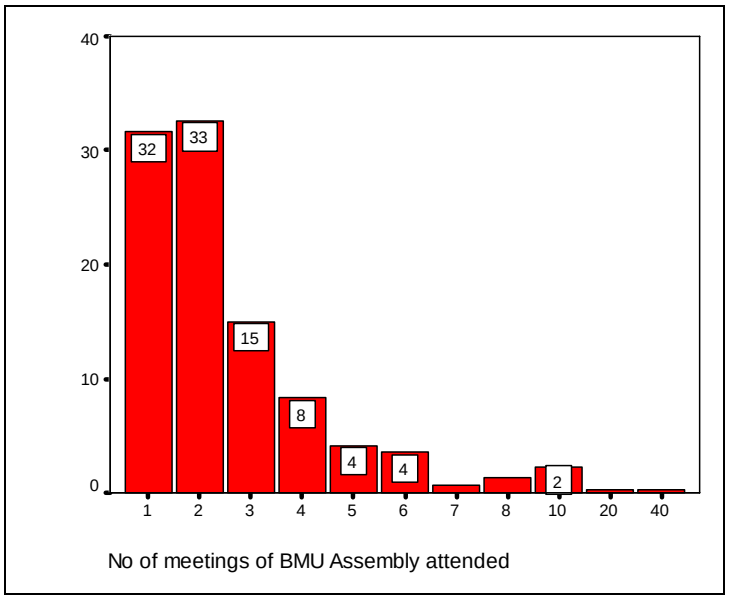


Chart 8.8: Respondents' attendance of BMU Assembly meeting over the last year

When the support of the members to the BMUs was examined, the data revealed that most members supported by attending meetings (22% N=1,235) (Chart 8.9), and there was little support through contribution of fish or cash. Generally, members who reported that they supported their BMUs were few. Support in the different forms is important for the success and sustainability of the BMUs.

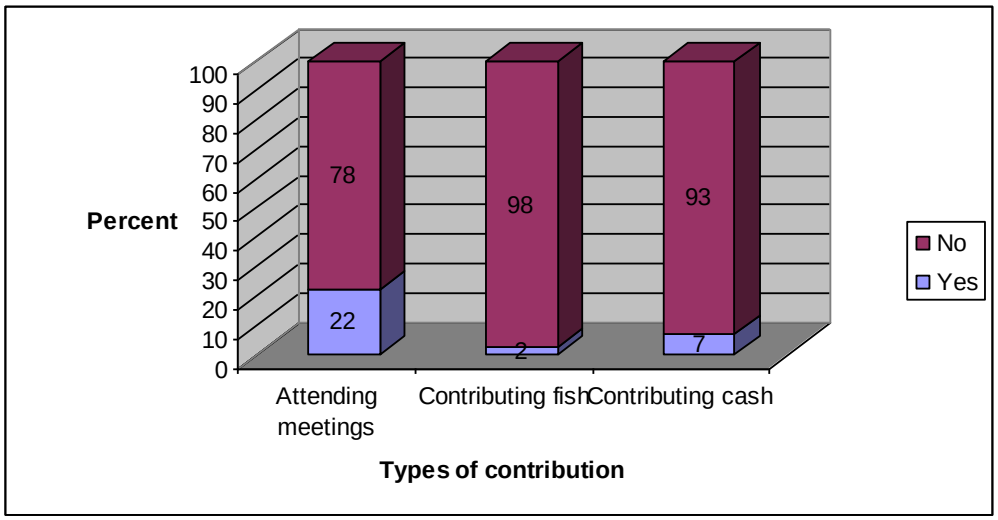


Chart 8.9: Members support to their BMUs

9. EXPENDITURES OF STAKEHOLDERS

Respondents were asked to rank how they spent their incomes from the fishery activities. The majority gave first priority to food (43% N=1,235), followed by those who gave first priority to education (27%) and health care (12%) (Chart 9.1). Only 6% ranked investment as their first priority. Clothing was not ranked highly as a first priority but third (29%) and second priority (21%). Contrary to what people believe, leisure was given first priority by only 2%. Details of other priorities as ranked by the respondents is given in Table 9.1 Below.

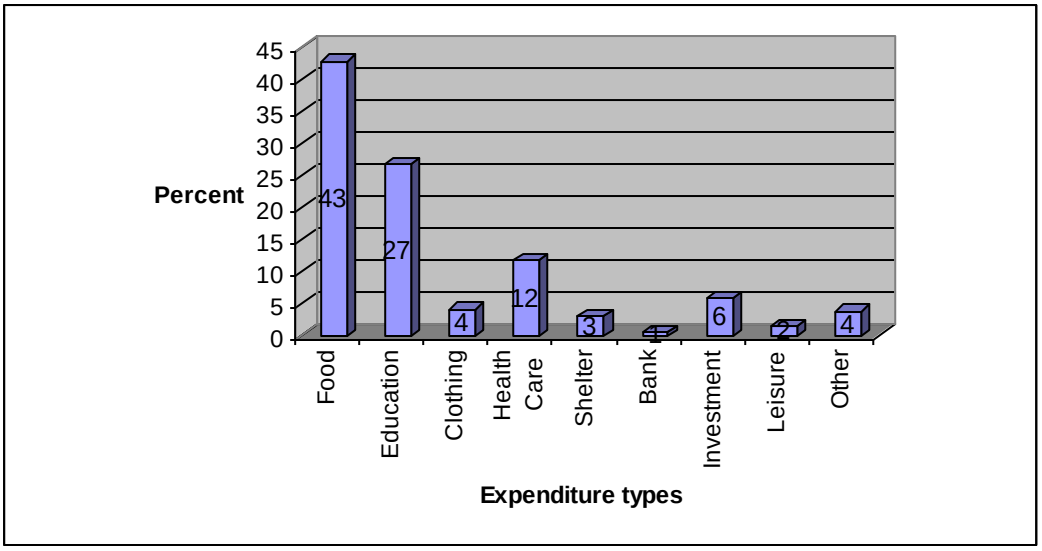


Chart 9.1: Respondents' expenditure areas of first priority

Table 9.1: Respondents' ranking for the different expenditure areas

	Food	Education	Clothing	Health Care	Shelter	Bank	Investment	Leisure	Other
Priority									
1	43	27	4	12	3	1	6	2	4
2	26	15	21	21	4	0	4	2	4
3	13	10	29	20	7	0	3	3	3
4	6	9	19	17	5	1	3	3	2
5	2	3	6	7	6	2	3	5	2
6	0	1	1	1	3	1	2	3	1
7	--	0	0	0	0	0	0	1	0
Total	90	64	80	77	29	5	21	19	16
Missing system	10	36	20	23	71	95	79	81	84
Total	100	100	100	100	100	100	100	100	100

10. BOAT OWNERS AND RENT-INs

Fishing assets owned

The number of boats owned by the different individuals was examined. The data showed that 360 respondents (29.15%) operated only one boat, 88 (7.13%) operated at most two boats and 46 (3.72%) operated at most 3 boats (Table 10.1).

Table 10.1: Respondents' ownership of boats

	Boat 1		Boat 2		Boat 3	
Ownership of boats	Frequency	Percent	Frequency	Percent	Frequency	Percent
Owned	297	24.05	81	6.56	41	3.32
Rented	63	5.10	7	0.57	5	0.40
Total	360	29.15	88	7.13	46	3.72
Missing System	875	70.85	1147	92.87	1189	96.28
Total	1235	100.00	1235	100.00	1235	100.00

Ownership of the boats also varied. Among respondents who operated at least one boat, more of them owned the boats (297) than those who rented them in (63) (Chart 10.1). The proportions of rented boats declined as the number of boats operated increased.

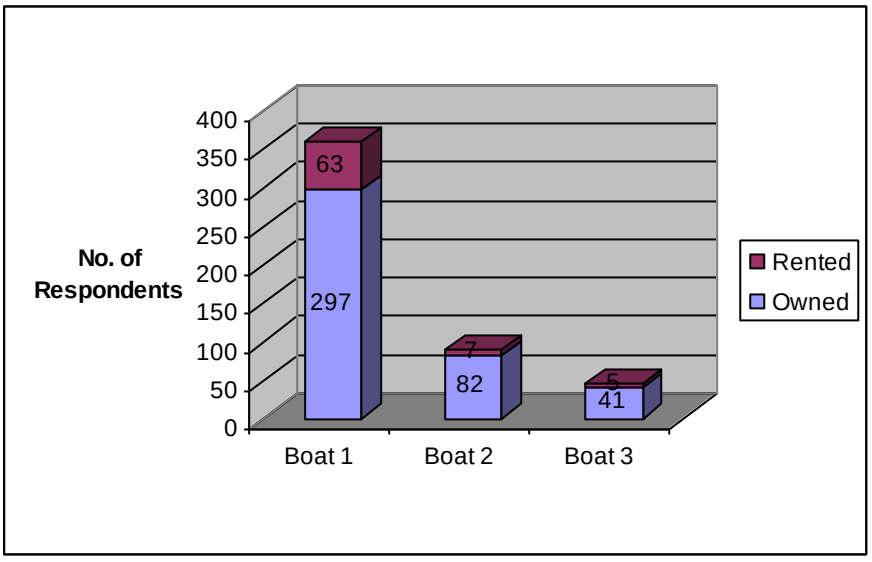


Chart 10.1: Ownership of boats operated by respondents

Various types of boats were used but the most common were the sesse flat, followed by the sesse pointed (Chart 10.2). Limited numbers of the parachute and dug-out boats were also reported. This compares well with the results from the Frame Surveys.

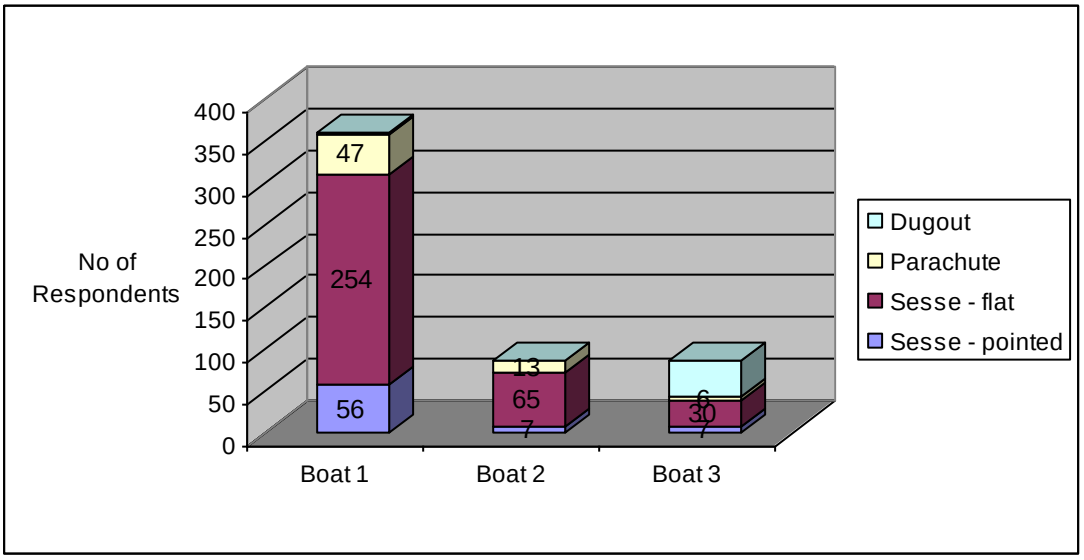


Chart 10.2: Types of boats used

The most common means of propulsion was the paddle, followed by outboard engines. Limited use of the inboard engine and sail was reported (Chart 10.3). The implications for effort is that these are boats which do not carry large fleets of gillnets.

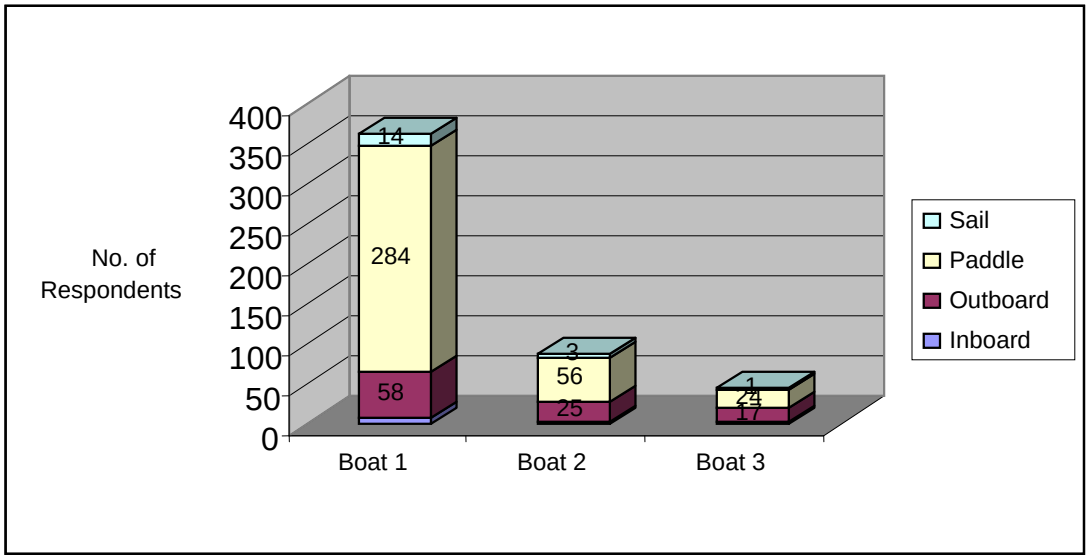


Chart 10.3: Means of boat propulsion

The main species targeted by the respondents was Nile perch, followed by tilapia (Chart 10.4). Significant levels of mukene and other species were also fished, particularly by people who owned or rented just one boat.

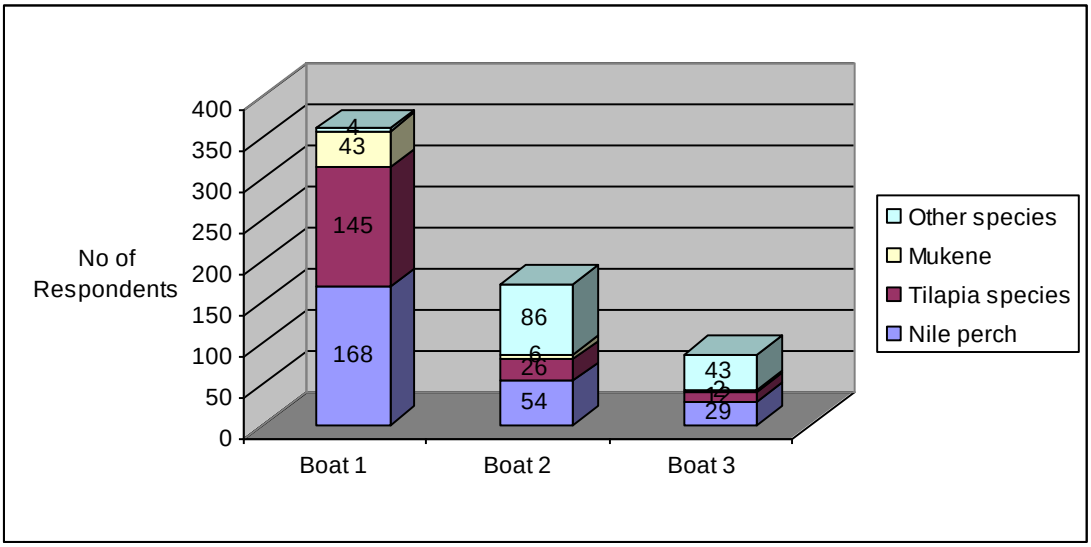


Chart 10.4: Species targeted

As to whether the respondents owned other boats, only 6.32% of them did, with the majority of these owning only one more (66.67%), followed by those who owned 3 more (15.38%) (Table 10.2).

Table 10.2: Number of other boats owned by respondents

	Frequency	Percent	Valid Percent
1	52.00	4.21	66.67
2	9.00	0.73	11.54
3	12.00	0.97	15.38
5	2.00	0.16	2.56
6	1.00	0.08	1.28
7	1.00	0.08	1.28
47	1.00	0.08	1.28
Total	78.00	6.32	100.00
Missing System	1157.00	93.68	
Total	1235.00	100.00	

Distribution of gear types by number of units is illustrated by Chart 10.5 while the data is summarized in Table 10.3. The data shows that most respondents operated with gillnets (213), followed by hook and lines, longlines and cast nets.

Most respondents owned less than 50 units of the gear they operated, except for longlines, where the majority owned more than 201 units and above (56.76%) (Table 10.3).

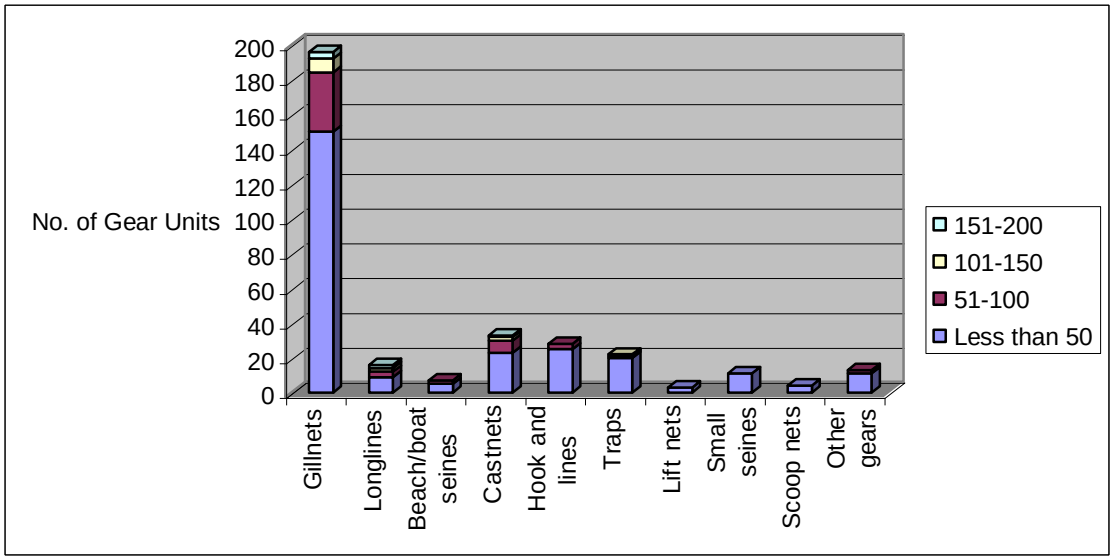


Chart 10.5: Number of respondents owning the different gears by numbers

Table 10.3: Number of respondents owning the different types of gear

	Less than 50 Gillnets		51-100 Gillnets		101-150 Gillnets		151-200 Gillnets		More than 201 Gillnets		Total	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
Gillnets	150	70.42	34	15.96	8	3.76	4	1.88	17	7.98	213	100.00
Longlines	9	24.32	3	8.11	2	5.41	2	5.41	21	56.76	37	100.00
Beach/boat seines	5	71.43	2	28.57							7	100.00
Cast nets	23	67.65	7	20.59	2	5.88	1	2.94	1	2.94	34	100.00
Hook and lines	25	62.50	3	7.50	12	30.00					40	100.00
Traps	20	86.96	1	4.35	1	4.35	1	4.35			23	100.00
Lift nets	3	100.00									3	100.00
Small seines	11	100.00									11	100.00
Scoop nets	4	100.00									4	100.00
Other gears	11	84.62	2	15.38							13	100.00

Choice of boats and gears

The survey examined the extent to which the respondents' choice of boats and gears were based on the different considerations. The responses are presented in Table 10.4.

The majority of the respondents ranked high skills requirements (42%), costs (39.5%) and risks involved with the boats and gear types (36.4%).

The considerations ranked as medium were income from fishing (53.8%) and risks (34.7%)

The considerations given low ranking were costs (34.6%), income from fishing (29.9%) and risks (28.9)

Clearly the different considerations are viewed differently by the different stakeholders, depending on category of stakeholders and types of species targeted. Notable in the data is the small number of respondents who gave income from fishing high ranking.

Table 10.4: Extent to which respondents' choices of boats and gears were based on different considerations

Ranking	Costs		Risks		Income from fishing		Skills required	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Low	120	34.6	101	28.9	103	29.9	96	28.8
Medium	90	25.9	121	34.7	185	53.8	97	29.1
High	137	39.5	127	36.4	56	16.3	140	42.0
Total	347	100.0	349	100.0	344	100.0	333	100.0

The proportion of boat owners/renters who used their own boats was examined. The data reveals that the majority of them (63.2% N=356) usually went fishing with their own boats (Chart 10.6). However, the data shows that boat rental was also significant, providing incomes to owners of boats who did not fish themselves.

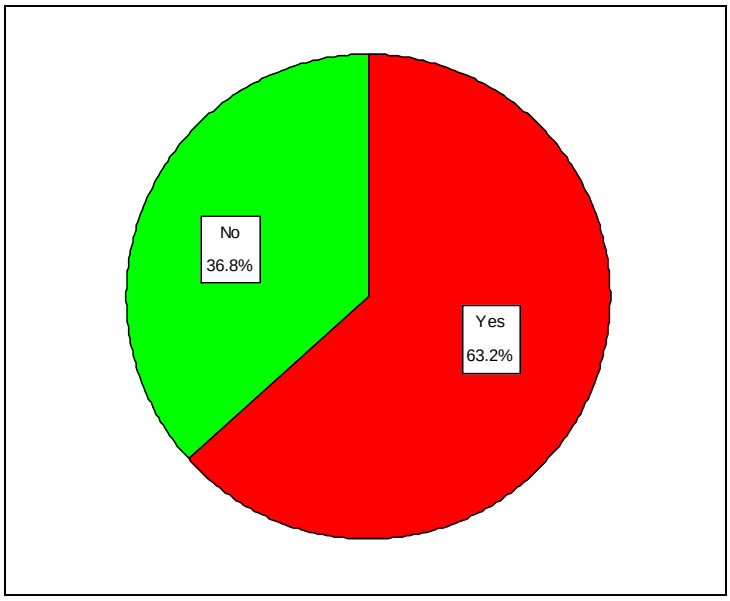


Chart 10.6: Respondents who usually went fishing with their own boats

Concerning whether they used crew, again the majority did (78.7% N=356) (Chart 10.7). This shows that fishing provided employment to people without the fishing equipment. The practice also allowed boat owners to do other types of business.

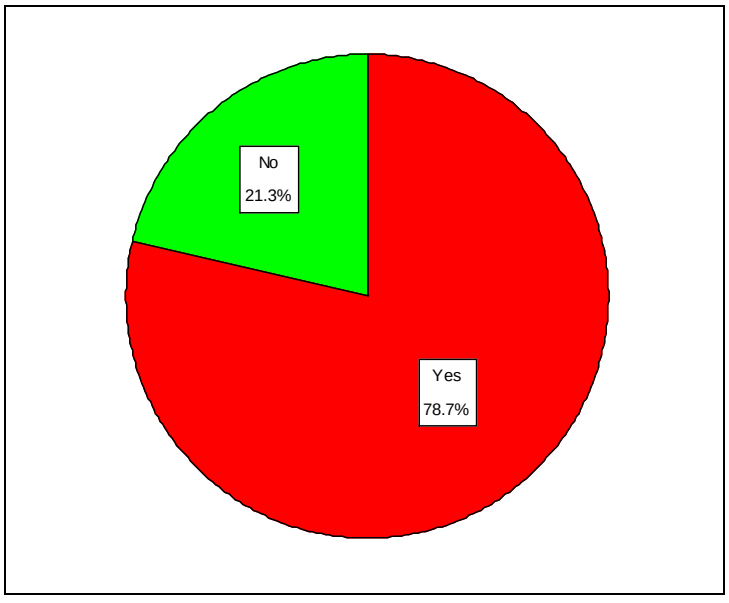


Chart 10.7: Respondents who used crew

The choice of crew was based on a number of considerations. However, most respondents considered the crew's skills at fishing as the main factor (47% N=300), followed by

reliability/trustworthiness (39%) (Chart 10.8). These were rational business decisions, leading to higher production and minimization of product losses. However, choice of relatives was also reported, reflecting the role of social ties in fish production.

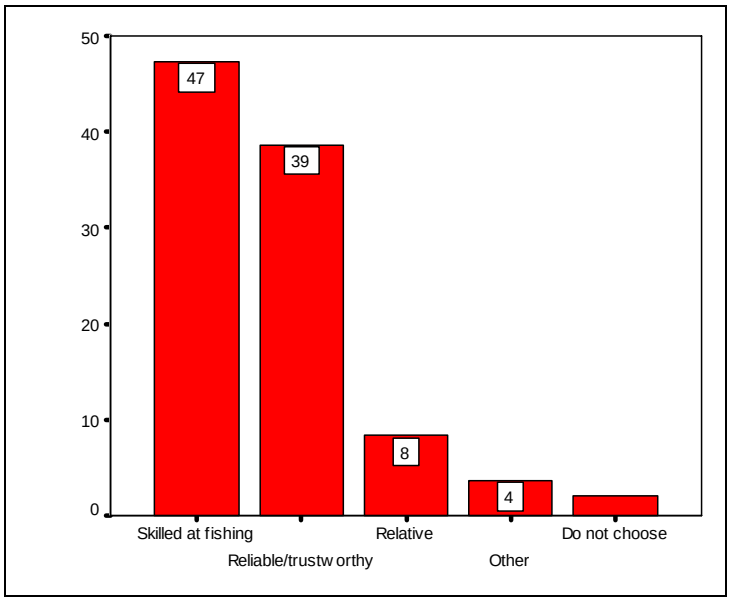


Chart 10.8: Considerations in choice of crew

The main buyers of fish for most of the fishers were reported to be the local traders (73% N=343), followed by the factory agents/industries (20%) (Chart 10.9). As the local traders supply mainly the domestic consumers, the implication is that much of the fish is destined to consumers on the domestic market. The sale of fish to factory agents/industries also shows how significant the proportion of fish destined to the export market is.

The data reveals that local processors constituted a small proportion of buyers of fish, showing the little role they played in the distribution of Lake Victoria fish. The implication is that without much processing, fish could not be delivered to distant consumers on the domestic market, which may be a matter of concern. However, it is noted that sometimes the traders are also processors.

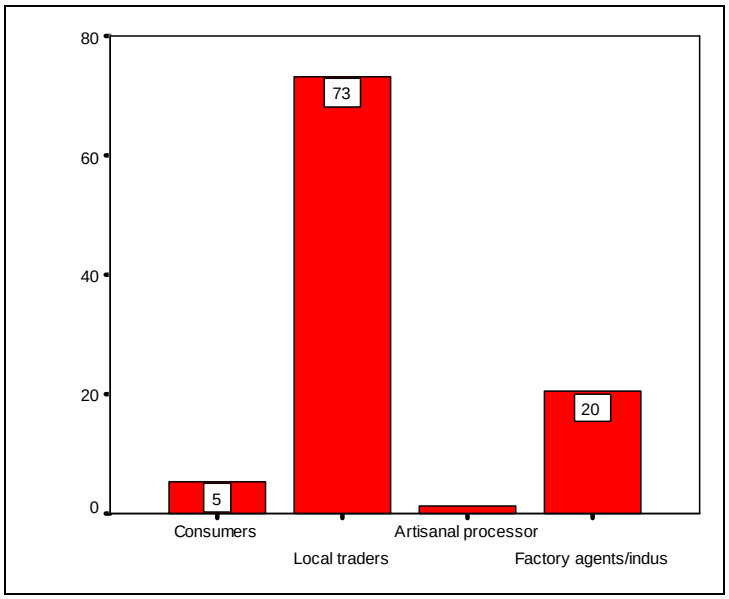
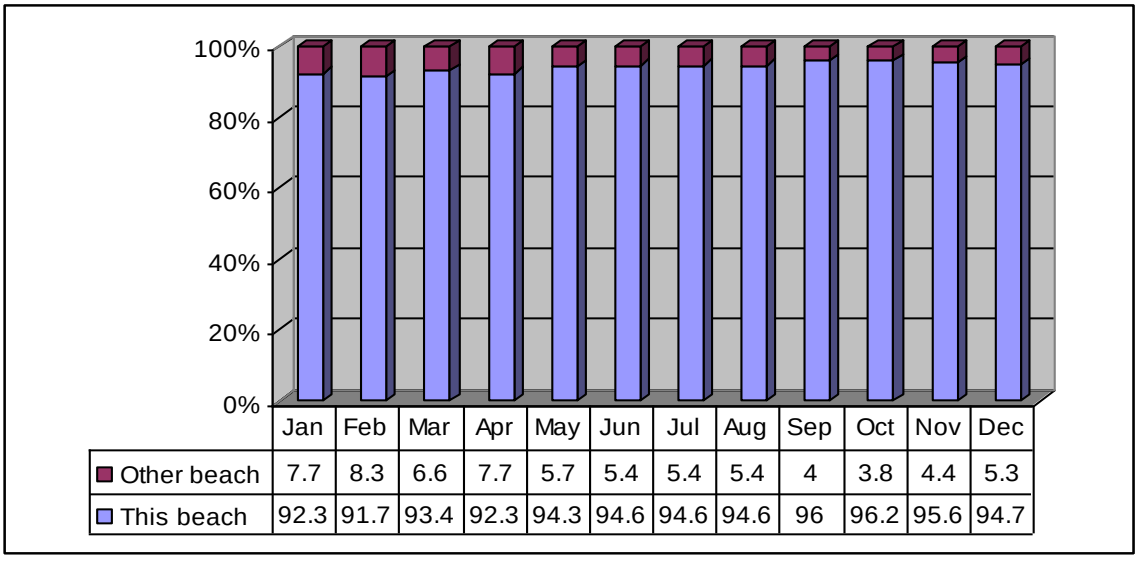


Chart 10.9: Respondents' main buyers of fish

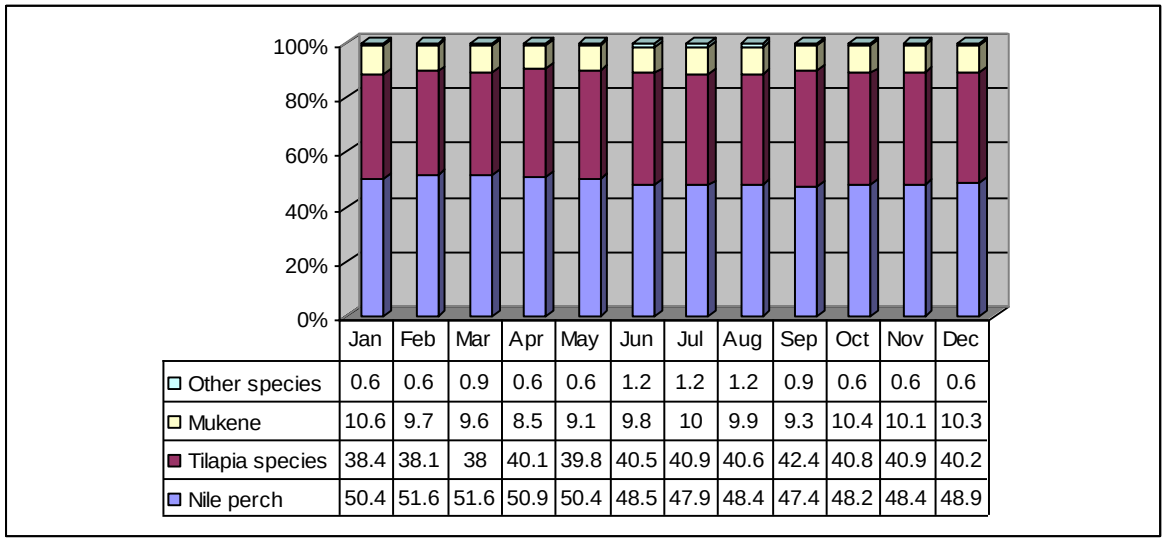
The location where the respondent fished during the different months of the year were investigated. The data shows that most respondents operated at the beach of interview during all the months (Chart 10.10). This shows that migration among fishers was not as high as often believed to be. This was a positive factor in the stability of the stakeholders for their development and for the purpose of fisheries management.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other beach	7.7	8.3	6.6	7.7	5.7	5.4	5.4	5.4	4	3.8	4.4	5.3
This beach	92.3	91.7	93.4	92.3	94.3	94.6	94.6	94.6	96	96.2	95.6	94.7

Chart 10.10: Beaches where respondent fished during the different months (%, N=350)

With respect to the species fished, the data reveals that a little more respondents targeted Nile perch than those who targeted tilapia, followed by mukene (Chart 10.11). A consistent pattern of species targeted remained through all the months of the year.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other species	0.6	0.6	0.9	0.6	0.6	1.2	1.2	1.2	0.9	0.6	0.6	0.6
Mukene	10.6	9.7	9.6	8.5	9.1	9.8	10	9.9	9.3	10.4	10.1	10.3
Tilapia species	38.4	38.1	38	40.1	39.8	40.5	40.9	40.6	42.4	40.8	40.9	40.2
Nile perch	50.4	51.6	51.6	50.9	50.4	48.5	47.9	48.4	47.4	48.2	48.4	48.9

Chart 10.11: Fish species targeted during the different months of the year (%, N=345)

11. FISHING CREW (*BARIAS*)

The survey sought to provide information on the crew as a major category of stakeholders involved in the fisheries. To begin with, respondents were asked what type of boats they were working on. By far, the majority of them (73.9%) worked on Sesse–flat boats, followed by those working on Sesse–pointed and Parachute boats (Table 11.1). Most of the Dug-out and Parachute boats would fall outside the categories of boats allowed on Lake Victoria under the regulations, and that may explain why so few crew members worked on them.

Table 11.1: Types of boat the crew worked on

	Frequency	Percent
Sesse - pointed	42	12.5
Sesse - flat	249	73.9
Parachute	41	12.2
Dugout	4	1.2
Other	1	.3
Total	337	100.0

However, the majority of the crew worked on boats which did not have outboard engine (81.4% N=350) (Chart 11.1).

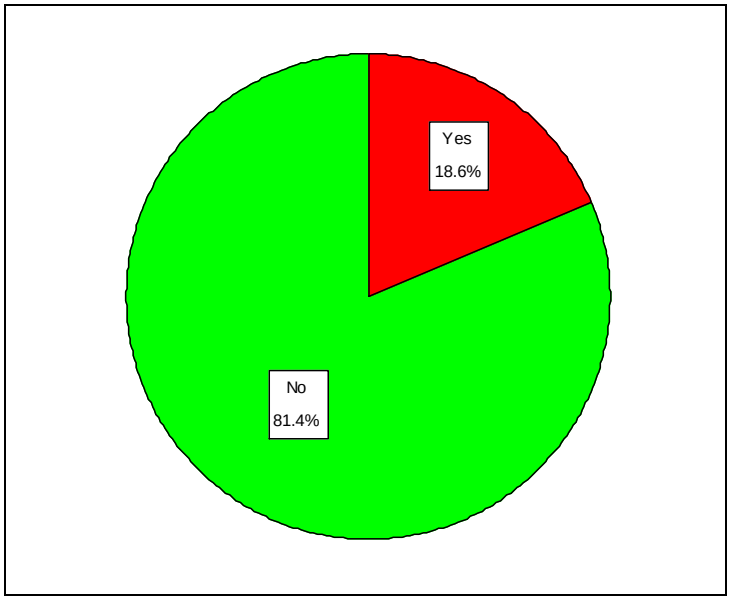


Chart 11.1: Crew who worked on boats with outboard engines

With respect to the species targeted by the crew, most of them reported catching Nile perch (48.7%), followed by tilapia (Table 11.2). This is consistent with the pattern species targeted by the boats as shown earlier in the report.

Table 11.2: Types of species the crew had mainly been catching

	Frequency	Valid Percent
Nile perch	164	48.7
Tilapia species	129	38.3
Mukene	39	11.6
Other species	5	1.5
Total	337	100.0
System	898	
	1235	

Concerning the experience of the crew, majority had worked for 1-5 years (70% N=328), followed by those who worked for 6-10 years (Chart 11.2). This shows that most of the crew members were relatively new and inexperienced in the fisheries work. This could have implications for the skills available in fishing.

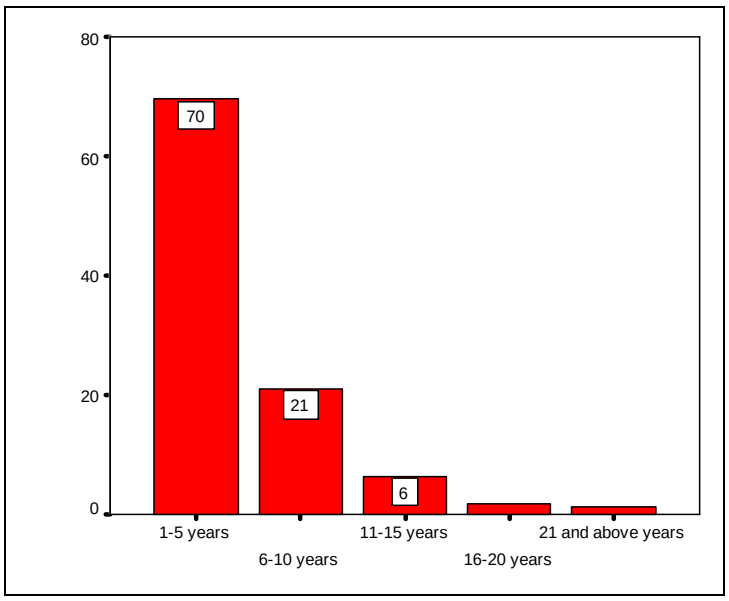


Chart 11.2: Number of years worked as crew member

The relationship between the boat owners and crew was examined. The data reveals that most of the crew members reported that the boat owners were not relatives to them (78.8%,

N=368). This shows that the hiring of crew by boat owners was not primarily driven by social considerations. This confirms the position given by boat owners earlier, where relationship was not one of the main considerations in hiring crew members.

With respect to the period spent on a particular boat, most of the crew interviewed had spent 3 months on the boat they were found working on (46%, N=336) followed by 12 months (45%) and 1 month (42%). The average number of months spent on the particular boat was 11 months.

Concerning the number of crew members working on the same boat, most respondents reported that they had 2 other crew members working with them (42.5%) followed by 1 other member (Table 11.3).

Table 11.3: Number of other members there were in the crew

	Frequency	Percent
1	107	33.6
2	135	42.5
3	54	17.0
4	20	6.3
5	2	.6
Total	318	100.0

Remuneration of crew varied under the different systems. The data shows that the majority of them were under the share percentage system (92.8%), and only a few under the fixed wage system (Table 11.4).

Table 11.4: How the crew were paid for work on the boat

	Frequency	Percent
Wage (fixed)	24	7.2
Share (%)	310	92.8
Total	334	100.0

The crew who were paid wages got on average Ush 35,055 per week (Std Deviation= 67,004). This is much higher than the unskilled labour wages paid in other sectors of the economy, observed to be within the range of Ush 30,000 - 80,000 per month.

For the crew members who were paid as percentage share, 68.3% had their fishing costs deducted before receiving their shares, while only 31.7% did not have them deducted first.

Where costs were deducted, the majority of the crew members had 50% share (40.6%), followed by those with 30% and 40% shares (Chart 11.3). The average percentage share for the crew was 40.2%

Where costs were not deducted, the majority of the crew members had 50% share (50.6%), followed by 40% (21.2%). The average share was 42% (Chart 11.5).

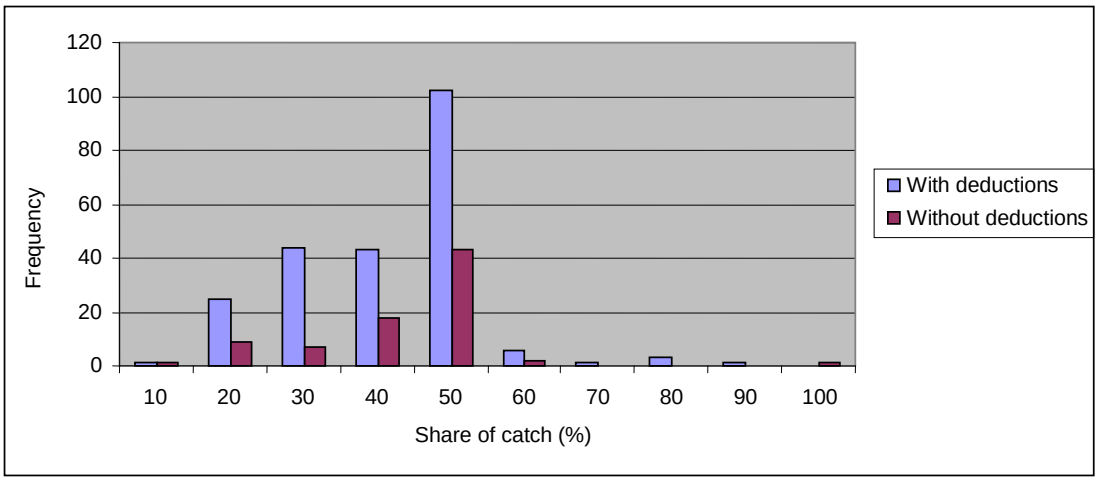


Chart 11.3: Crew members' share with and without deduction of fishing costs

Table 11.5: Crew members' share of the catch

	With fishing cost deductions		Without fishing cost deductions	
Share (%)	Frequency	Percent	Frequency	Percent
10	1	0.4	1	1.2
20	25	10.0	9	10.6
30	44	17.5	7	8.2
40	43	17.1	18	21.2
50	102	40.6	43	50.6
60	6	2.4	2	2.4
70	1	0.4		
80	3	1.2		
90	1	0.4		
100			1	1.2

On the question of how the crews' share is divided between the members, the majority said it was divided equally (70.3% N=350). However, there were also cases where they were not equally divided as the head crew received more than the others.

The largest proportion of the crew always got fish to eat in addition as payment (44.9%). There were also cases where they never did. This is illustrated by Table 11.6.

Table 11.6: How often the crew got fish to eat in addition as payment

	Frequency	Percent
Always	146	44.9
Sometimes	107	32.9
Never	72	22.2
Total	325	100.0

Some 48.6% (N=350) of the crew had worked on other boats during the last one year, marginally less than those who had not (51.4%). Mobility by crew between boats was, therefore, a common practice.

Although the majority of the crew had worked on only one boat, there were others who worked on 2, 3, 4 and more boats during the last one year (Table 11.7). Those who changed boats reported that the need to maximize earnings from one boat to another and the existence of lean fishing seasons were among the factors considered.

Table 11.7: Number of other boats crew worked on

Boats	Frequency	Percent
1	84	45.7
2	49	26.6
3	24	13.0
4 and above	26	14.4
Total	184	100.0

Concerning the mobility of crew between beaches, the majority had worked at only one beach (61.3%). However, there were others who worked at 2, 3 and more beaches in the last year (Table 11.8).

Table 11.8: Number of beaches crew had worked on in the last year

Beaches	Frequency	Percent
1	168	61.3
2	61	22.3
3	19	6.9
4	13	4.7
5	6	2.2
6	3	1.1
7	2	.7
9	2	.7
Total	274	100.0

The survey sought to establish how easily the crew members were able to get work. The crew members who were not able to get work when they wanted to work (49.1% N=350) were close to the number of those who were able to get it (50.9%). This was blamed on the variations in the fishing seasons, where work was hard to get during the lean fishing seasons and yet during "good" seasons many of them could get the jobs. This shows that there were job uncertainties among the crew members.

For those who were not able to get work whenever they wanted to, they had more problems than in previous years (42.3%). However, a significant proportion of them also had fewer problems than before (40.6) (Table 11.9).

Table 11.9: How frequently crew had problems with getting work compared to previous years

	Frequency	Percent
More often than before	74	42.3
Same as before	30	17.1
Less than before	71	40.6
Total	175	100.0

12. FISH PROCESSORS AND TRADERS

Fish processors

The survey examined the stakeholders involved in fish processing and trading, their activities, main buyers and means of transportation used.

The majority of the fish processors were involved in trading only (46.5% N=318), followed by those involved in processing and trading (Chart 12.1). The data reveals the variety of activities stakeholders in this category were involved in.

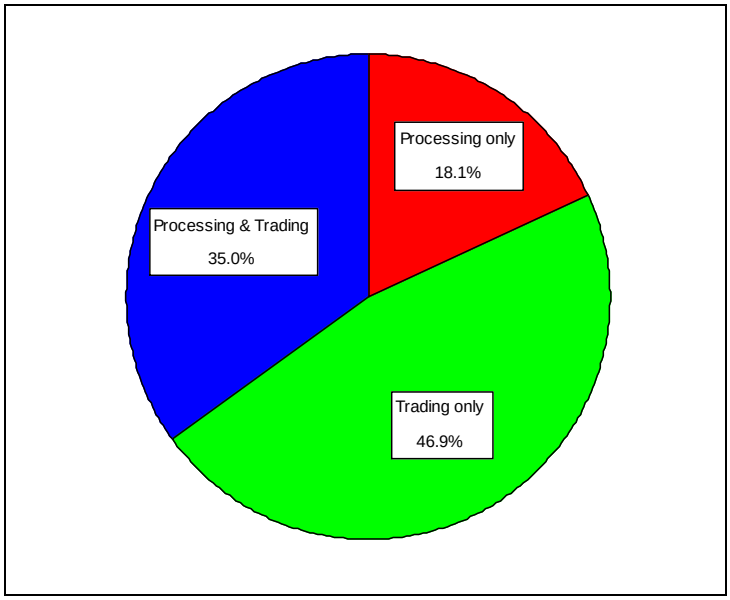


Chart 12.1: Activities of processors/traders

The fish species processed by most of the respondents in the category was Nile perch (34.9%), followed closely by tilapia and mukene (Table 12.1)

Table 12.1: Fish species respondents processed most

	Frequency	Percent
Nile perch	60	34.9
Tilapia	52	30.2
Mukene	52	30.2
Other	8	4.7
Total	172	100.0

However, with respect to the product form, majority of respondents processed the smoked fish mostly (52.0%), followed by the sun-dried form (Table 12.2).

Table 12.2: The fish product forms respondents processed mostly

	Frequency	Percent
Fresh	10	5.8
Smoked	89	52.0
Sun-dried	60	35.1
Fried	7	4.1
Salted	5	2.9
Total	171	100.0

In order to carry out these processing activities, the assets owned by the stakeholders were examined. Most respondents owned the smoking kiln of some sort (48.7%). Other assets were owned by smaller proportions of the processors/traders (Table 12.3).

Table 12.3: Processing assets owned

	Frequency	Percent
Smoking kiln	73	48.7
Drying racks	13	8.7
Stove (jiko)	10	6.7
Other	54	36.0
Total	150	100.0

For the mukene processors, most of them dried their products on rocks (38.5%), followed by those who dried it on nets and sand (Table 12.4). This shows that the mukene was not being dried in the most hygienic ways.

Table 12.4: Where respondents dried mukene.

	Frequency	Percent
Sand	12	18.5
Soil	7	10.8
Rocks	25	38.5
Nets	19	29.2
Drying rack	1	1.5
Other	1	1.5
Total	65	100.0

Storage of processed fish was an issue of concern. Most of the processors/traders stored their fish in the house (63.8%), followed by those who used a separate store in the home

(Table 12.5). Storage of the product in the house where people live is not a hygienic practice and should not be recommended.

Table 12.5: Where respondents stored their fish

	Frequency	Percent
In the house	95	63.8
Separate store at your home	32	21.5
At the beach	13	8.7
Other	9	6.0
Total	149	100.0

Among the respondents who processed Nile perch, the majority (3 out of 22) sold 3 kg per day, followed by 2 persons who sold 2 and 4 kgs per day. There were also respondents who sold large quantities per day, notably the factory agents and factories (Table 12.6). Therefore, the mean number of kgs of Nile perch sold per day was 222.2kg (Std Deviation=491.815).

Table 12.6: No. of kgs of Nile perch respondents sold each day most of the time

Kgs	Frequency	Percent
1	1	4.5
1	2	9.1
2	3	13.6
3	1	4.5
4	2	9.1
5	1	4.5
10	1	4.5
14	1	4.5
20	1	4.5
30	1	4.5
40	1	4.5
100	1	4.5
150	1	4.5
200	1	4.5
300	1	4.5
1000	2	9.1
2000	1	4.5
Total	22	100.0

Very few respondents reported selling Nile perch by bags and the few who sold in baskets sold 1-4 baskets a day. Some respondents also sold whole units of Nile perch, selling a mean of 55.61 kg pr day (Std. Deviation=50.67).

The majority of tilapia processors/traders sold 20 kgs per day (3 out of 15) but there were also large scale export dealers of tilapia in the sample (Table 12.7).

Table 12.7: Kgs of tilapia respondents sold each day most of the time

Kgs	Frequency	Percent
3	1	6.7
4	1	6.7
8	1	6.7
10	1	6.7
15	1	6.7
20	3	20.0
100	2	13.3
180	1	6.7
200	1	6.7
250	1	6.7
1000	2	13.3
Total	15	100.0

Inadequate responses were received with respect to the sale of tilapia by sack or basket due to the absence of such practices among the respondents. More respondents, however, reported selling tilapia by whole fish, with a wide range of responses reported as shown in Table 12.8. This was because the sample included both artisanal processors/traders and commercial exporters.

Table 12.8: Number of whole tilapia respondents sold each day most of the time

No. of whole tilapia	Frequency	Percent
1	1	3.7
2	1	3.7
3	1	3.7
9	1	3.7
10	3	11.1
20	1	3.7
27	1	3.7
30	1	3.7
42	1	3.7
50	3	11.1
60	1	3.7

90	2	7.4
100	4	14.8
120	1	3.7
250	1	3.7
300	1	3.7
400	1	3.7
500	1	3.7
1000	1	3.7
Total	27	100.0

The majority of the respondents sold small quantities of mukene, 2-4 kgs per day but there were also large scale dealers selling up to 300 kgs per day (Table 12.9). The mean weight sold was 28.2 kgs per day. It should be noted that processors/traders sold dried mukene. Sale of mukene by bag and basket also varied. The mean sales of mukene by bag was 7.67 bags per day and by basket was 2.92 baskets per day.

Table 12.9: Kgs of mukene respondents sold each day most of the time

Kgs	Frequency	Percent
1	1	4.2
1	2	8.3
3	2	8.3
4	1	4.2
4	2	8.3
5	1	4.2
5	1	4.2
6	1	4.2
8	1	4.2
10	2	8.3
14	1	4.2
15	2	8.3
20	1	4.2
30	1	4.2
35	2	8.3
50	1	4.2
100	1	4.2
300	1	4.2
Total	24	100.0

Very few of the respondents (N=4) dealt in other fish species, selling 1-2 kgs of fish per day.

The materials used for processing were examined. Most respondents used wood in fish processing, followed by other materials and salt (Chart 12.2).

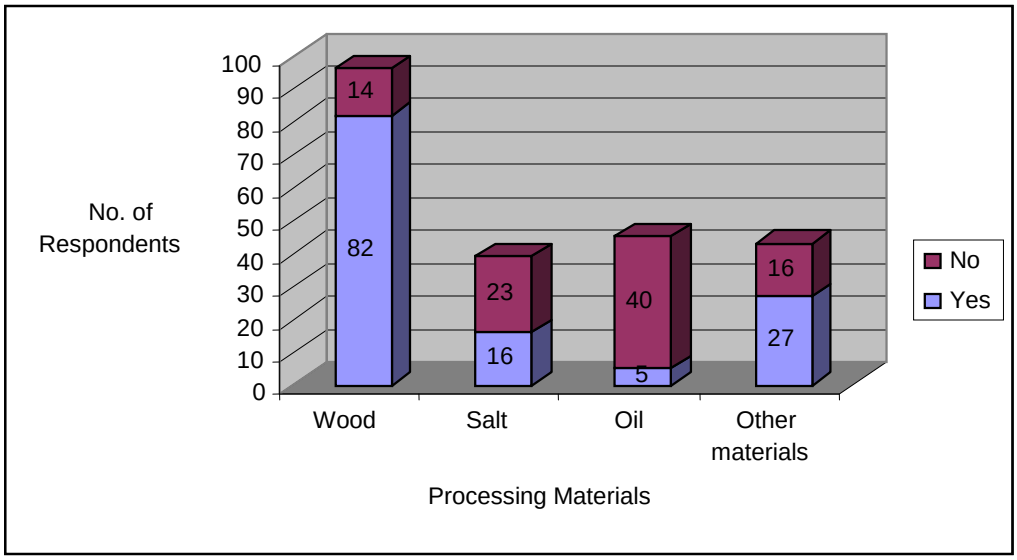
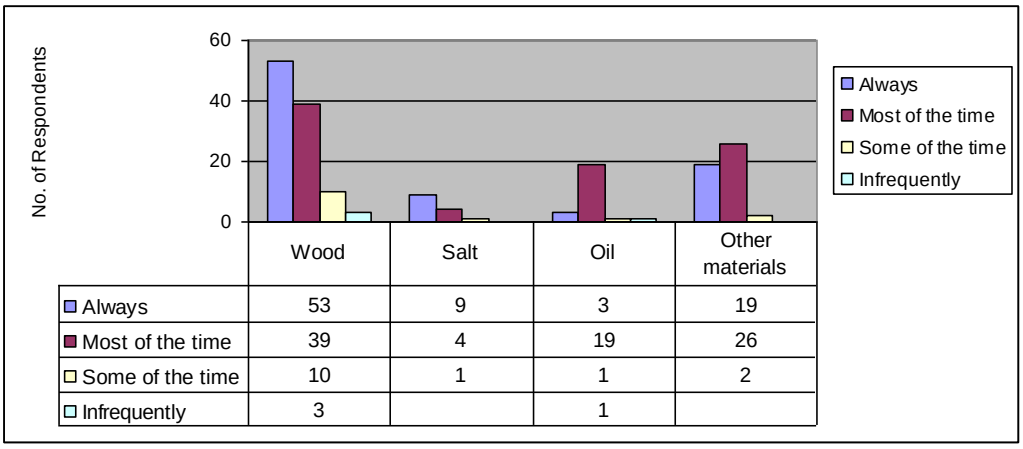


Chart 12.2: No. of respondents using the different processing materials

Concerning availability of the materials used in fish processing, wood was the most readily available while salt was the least available (Chart 12.3).



	Wood	Salt	Oil	Other materials
Always	53	9	3	19
Most of the time	39	4	19	26
Some of the time	10	1	1	2
Infrequently	3		1	

Chart 12.3: Availability of materials to respondents for fish processing

Fish traders

The species respondents dealt in most was Nile Perch (42.6%), followed by tilapia (Table 12.10). A few others traded in mukene and other species.

Table 12.10: Fish species respondents dealt in mostly

	Frequency	Percent
Nile perch	107	42.6
Tilapia	92	36.7
Mukene	41	16.3
Other	11	4.4
Total	251	100.0

Most of the respondents traded in fresh fish (51.4%), followed by smoked and sun-dried products (Table 12.11).

Table 12.11: Fish product form respondents dealt in mostly

	Frequency	Percent
Fresh	142	51.4
Smoked	71	25.7
Sun-dried	52	18.8
Fried	6	2.2
Salted	5	1.8
Total	276	100.0

The majority of them bought their fish supplies from fishermen (89.1%), while just a few bought from other traders and fish agents (Table 12.12).

Table 12.12: Who the respondents bought from

	Frequency	Percent
Fishermen	246	89.1
Other traders	14	5.1
Fish agents	9	3.3
Other	7	2.5
Total	276	100.0

With respect to the buyers of the fish, majority of the respondents sold to traders (53.6%), followed by consumers and fish factories (Table 12.13).

Table 12.13: To whom the respondents sold the fish

	Frequency	Percent
Traders	148	53.6
Fish factories	52	18.8
Consumers	74	26.8
Other	2	.7
Total	276	100.0

The majority sold their fish to buyers within the village (35.6%), followed by respondents who sold in another village nearby and in another district (Table 12.14).

Table 12.14: Where respondents sold fish

	Frequency	Percent
Within this village	99	35.6
Another village nearby	55	19.8
This Sub-county	24	8.6
This District	39	14.0
Other District	56	20.1
Other Country	5	1.8
Total	278	100.0

In most cases, the respondents went to markets less than 5 km (40.4%), followed by distant markets of over 50 km away (Table 12.15). Markets within were also visited.

Table 12.15: How far the market where respondents sold was

	Frequency	Percent
<5km	111	40.4
6-20km	53	19.3
21-50km	47	17.1
>50km	64	23.3
Total	275	100.0

The majority of the respondents transported the fish to market on foot (30.2%), followed by those who transported by boat, own bicycles and public vehicles (Table 12.16).

Table 12.16: Means mostly used to transport fish to market

	Frequency	Percent
On foot	86	30.2
Own bicycle	44	15.4
Hired bicycle	11	3.9
Public vehicle	42	14.7
Own vehicle	3	1.1
Hired truck/vehicle	23	8.1
Boat	62	21.8
Other	14	4.9
Total	285	100.0

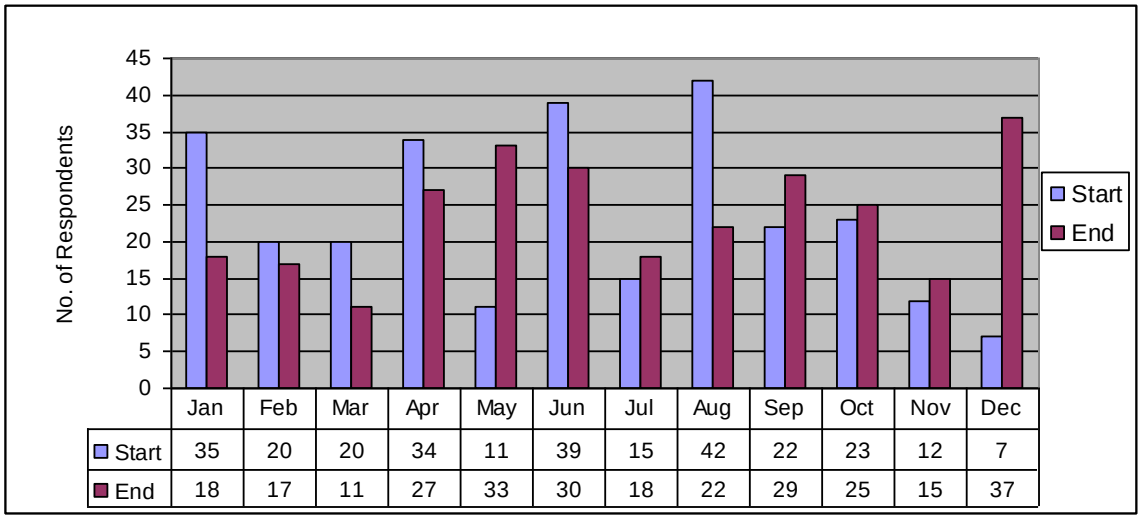
The operations of the traders were examined using a set of statements (Table 12.17). The data reveals that for most respondents, there weren't enough fish to buy only some of the

time (45.36%). Most respondents never couldn't sell all their fish that they had bought (38.46%). The majority couldn't afford to buy the fish available some of the time (33.79%). For most of them that they couldn't get enough ice was not a relevant concern (62.45%).

Table 12.17: Selected statements and when they are true (%)

	Always	Most of the time	Some of the time	Infrequently	Never	Not relevant	Total
There aren't enough fish to buy	11.34	23.71	45.36	9.62	5.15	4.81	100.00
I can't sell all the fish that I have bought	5.52	7.59	26.21	18.62	38.62	3.45	100.00
I can't afford to buy the fish available	2.76	7.24	33.79	20.69	32.41	3.10	100.00
I can't get enough ice	3.07	4.21	13.79	4.98	11.49	62.45	100.00

The survey sought to establish what the stakeholders considered the high and low trading seasons, identifying their starting and ending months. The months of June to August appeared to mark the beginning of the high season while December was considered by the majority of the respondents as the end of the high season (Chart 12.4)

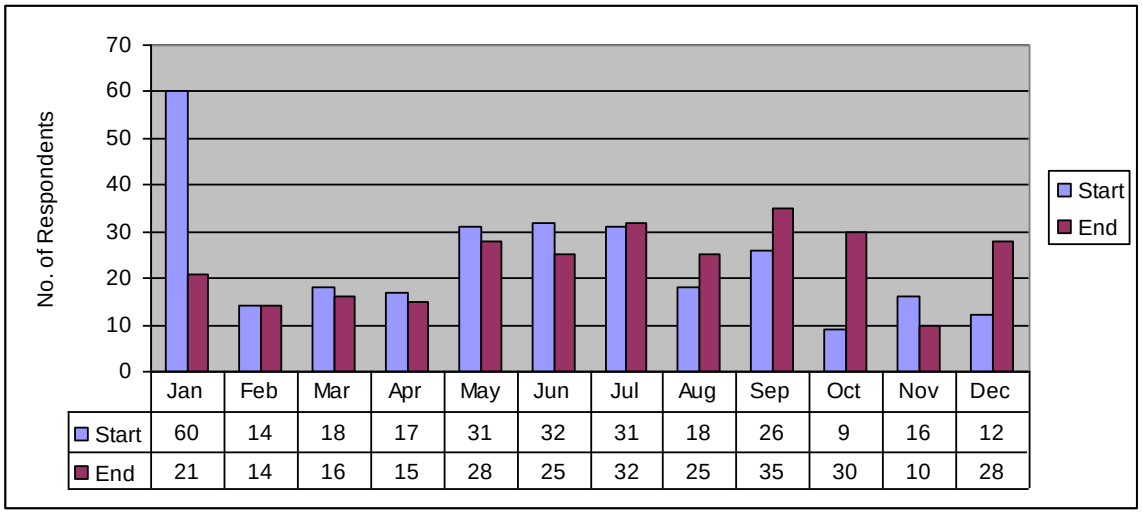


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Start	35	20	20	34	11	39	15	42	22	23	12	7
End	18	17	11	27	33	30	18	22	29	25	15	37

Chart 12.4: Respondents' views on the start and end of high fish trading months

With respect to the low trading season, the majority considered January as the beginning of the low season and September was definitely the end of the low trading season (Chart

12.5). This related closely with the harvesting periods among farmers, thus increasing the purchasing power and demand for fish among consumers.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Start	60	14	18	17	31	32	31	18	26	9	16	12
End	21	14	16	15	28	25	32	25	35	30	10	28

Chart 12.5: Respondents' views on the start and end of low fish trading months

Nile Perch trading

The data reveals that the majority of the Nile perch traders dealt in the fresh form (N=101), followed by those who dealt in the smoked form (N=23) (Table 12.18). However, other forms were also traded.

The mean number of trips to market per week in the low season ranged from 1 for other processing types to 3.92 for the fresh form. During the high season, the mean number of trips ranged from 1 for other processing types to 7 for the sun-dried products. However, the samples for some of the processing types were too small to make conclusive statements.

Table 12.18: Number of trips to market for Nile perch per week

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh Nile perch	Low	101	1	12	3.92	3.352
	High	69	1	14	3.98	2.599
Smoked Nile perch	Low	23	0	5	1.19	1.077
	High	23	1	4	1.91	.996
Sun-dried Nile perch	Low	1	3	3	3.00	.
	High	1	7	7	7.00	.

Fried Nile perch	Low	1	3	3	3.00	.
	High	1	5	5	5.00	.
Salted Nile perch	Low	0				
	High	0				
Other processed Nile perch	Low	1	1	1	1.00	.
	High	1	1	1	1.00	.

The quantities of Nile perch traded varied significantly between the low and high seasons and between traders dealing in the different forms of Nile perch

During the low season, the mean quantities of fish traded per trip ranged from 50 kgs for fried and sun-dried products to 534.51 for the fresh form (Table 12.19).

During the high season, the quantities delivered ranged from 70 kgs for the fried product to 2,575.40 for the fresh form

Table 12.19: Quantities of Nile perch traded per trip (Kgs)

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh Nile perch	Low	59	1	4500	534.51	926.238
	High	55	1	15000	2575.40	3654.690
Smoked Nile perch	Low	10	15	300	75.50	85.779
	High	10	12	500	139.20	147.865
Sun-dried Nile perch	Low	1	40	40	40.00	.
	High	1	100	100	100.00	.
Fried Nile perch	Low	1	40	40	40.00	.
	High	1	70	70	70.00	.
Salted Nile perch	Low	1	1000	1000	1000.00	.
	High	1	1000	1000	1000.00	.
Other processed Nile perch	Low	0				
	High	0				

Tilapia trading

Data was collected on tilapia traders dealing on the different types of product except fried fish and there was more activity on fresh tilapia than other forms of the fish. The mean number of trips to market during the low season ranged from 1 for the sun-dried tilapia traders to 3.49 kgs for the fresh fish traders (Table 12.20).

During the high season, the trips ranged from 1 for the sun-dried fish traders to 6.83 per week for the fresh tilapia traders.

Table 12.20: Number of trips to market for Tilapia per week

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh tilapia	Low	44	1	14	3.49	2.569
	High	46	1	80	6.83	11.455
Smoked tilapia	Low	17	1	10	1.82	2.208
	High	15	1	7	2.83	2.032
Sun-dried tilapia	Low	1	1	1	1.00	.
	High	1	1	1	1.00	.
Fried tilapia	Low	0				
	High	0				
Salted tilapia	Low	3	1	2	1.33	.577
	High	3	1	4	2.00	1.732
Other processed tilapia	Low	1	3	3	3.00	.
	High	1	5	5	5.00	.

The quantities of tilapia traded varied significantly between the low and high seasons and between traders dealing in the different forms of the fish.

During the low season, the mean quantities of fish traded per trip ranged from 75 kgs for the sun-dried products to 450 for the salted form (Table 12.21).

During the high season, the quantities delivered ranged from 100 kgs for the fried product to 1,350 kgs for the salted form.

Although there were few traders dealing in the salted tilapia, their operations were large scale, compared to those of the other traders.

Table 12.21: Quantities of tilapia traded per trip (Kgs)

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh tilapia	Low	20	1	1000	141.35	230.855
	High	19	2	3000	431.16	759.402
Smoked tilapia	Low	9	20	1000	262.22	302.191
	High	9	7	2000	524.67	607.813
Sun-dried tilapia	Low	1	75	75	75.00	.
	High	1	150	150	150.00	.
Fried tilapia	Low	0				
	High	2	100	100	100.00	.000
Salted tilapia	Low	2	300	600	450.00	212.132
	High	2	700	2000	1350.00	919.239
Other processed tilapia	Low	0				
	High	0				

Mukene trading

The majority of mukene traders dealt in the sun-dried products. The average number of trips to market during the low season ranged from 1.96 for the sun-dried fish to 2.00 for the fresh product (Table 12.22).

During the high season the average number of trips ranged from 2.67 for the fresh form to 7.00 for the sun-dried form.

Table 12.22: Number of trips to market for Mukene per week

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh mukene	Low	2	1	3	2.00	1.414
	High	3	2	3	2.67	.577
Sun-dried mukene	Low	20	0	5	1.96	1.338
	High	20	1	50	7.00	10.608
Other processed mukene	High	0				

There were no defined measures for trading mukene and the units used on the different beaches varied. However some standard measures were adopted and used to convert measures of volumes into weights.

During the low seasons the average quantities traded per trip ranged from 9.00 kg for fresh mukene to 13.00 for the sun-dried fish (Table 12.23).

During the high season, the average quantities ranged from 29.30 kgs for the sun-dried fish to 51.50 kgs for the fresh product.

Table 12.23: Quantities of mukene traded per trip (Kgs)

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Fresh mukene	Low	2	3	15	9.00	8.485
	High	2	3	100	51.50	68.589
Sun-dried mukene	Low	12	1	90	13.38	24.485
	High	10	1	100	29.30	38.102
Other processed mukene	High	0				

Other fish species trading

Generally, there was limited trade in other species. These species included C*larias*, *Bagrus* and the haplochromines. During the low season the average number of trips per week ranged

from 1 to 7 (Table 12.24). During the high season, also, the average number of trips ranged from 1-7. Generally, however, there were not sufficient traders to draw hard conclusions about their practices.

Table 12.24: Number of trips for other fish per week

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Other fresh fish	Low	1	1	1	1.00	.
	High	1	6	6	6.00	.
Other smoked fish	Low	0				
	High	1	7	7	7.00	.
Other sun-dried fish	Low	0				
	High	1	1	1	1.00	.
Other fried fish	Low	1	7	7	7.00	.
	High	0				
Other salted fish	Low	0				
	High	0				
Other processed other fish	Low	2	2	2	2.00	.000
	High	2	7	7	7.00	.000

Limited data was available on the quantities of only the smoked fish, indicating that on average, the quantities traded during the low season was 15 kgs while during the hgh season it was 107 kgs (Table 12.25).

Table 12.25: Quantities of other traded fish traded per trip

	Season	N	Minimum	Maximum	Mean	Std. Deviation
Other fresh fish	Low	0				
	High	0				
Other smoked fish	Low	1	15	15	15.00	.
	High	1	107	107	107.00	.
Other sun-dried fish	Low	0				
	High	0				
Other fried fish	Low	0				
	High	0				
Other salted fish	Low	0				
	High	0				
Other processed other fish	Low	0				
	High	0				

13. TRAINING RECEIVED

The status of training among the stakeholders was examined. The data reveals that only 2.8% of the respondents ever received any training relating to their business. This shows that either there were no effective training programmes for them or the training was not effective.

With respect to the areas of training, the majority of them received training on quality control (41.7%), followed by those who received training on fish processing (30.6%) (Table 13.1).

Table 13.1: The most relevant training received by respondents.

	Frequency	Percent
Book keeping and accounting	6	16.7
Fish processing	11	30.6
Quality control	15	41.7
Other	4	11.1
Total	36	100.0

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The socio-economic baseline survey was conducted to provide information on the fish landing beaches, facilities available, the stakeholders involved in fisheries, assets owned and their livelihood activities.

Beach data

Activities were carried out from beaches which could be categorized on the basis of the main species targeted, namely Nile perch, tilapia, mukene and mixed beaches.

Apart from fishing, there were people involved in fish processing and trading, net making, boat building, farming and trading in food commodities as alternative sources of livelihoods.

Smoking was the main method of processing for Nile perch and tilapia while sun-drying was for mukene.

Average fish prices at the beaches were: Nile perch Sh 1,500 per kg, Tilapia Sh 1,100 per kg and Mukene (sun-dried) Sh 1,200 per kg.

Mukene was fished and landed within restricted beaches and mostly sun-dried before sale.

Most stakeholders had access to social facilities, namely medical, educational and recreational facilities, but these were located either in the same village, at the Sub-county or elsewhere in the District.

Characteristics of stakeholders

The stakeholders on Lake Victoria came from different tribes but the majority were the Baganda, followed by the Basoga and the Samia. Most of them were born in districts other than where they operated.

The majority did not complete primary education and quite a few had no education completely. High rates of school drop-outs were exhibited among the stakeholders.

Housing conditions

Very few of them had assets, including permanent houses, land, vehicles and bank accounts.

The health of fishers was affected by malaria, bilharzhia, HIV/AIDS and diarrhea, among other diseases. Most people used the lake as their main source of drinking water.

Asset ownership

Many fishers reported owning land, which they used to construct houses and grow food crops. Only a few of the people owned a cow. The low level of animal rearing was attributed to the concentration on fishing and absence of grazing land. Very few of them owned fish ponds, which were not even put to use. None of the fishers practiced fish farming.

Bicycles were the main means of transport owned by many people, particularly boat owners and traders. Generally, fishers did not own vehicles because of the poor access roads and poverty.

Fishers saved only small proportions of their daily earnings. Very few had bank accounts, which they maintained outside the districts.

Livelihood, health and consumption status

Some of the fishers earned incomes from boats, gears, fish trading and processing, net making boat building.

Most of the stakeholders reported getting enough food for their households, having two meals a day with tilapia as their favourite sauce.

Information, communication and outreach

The majority listened to the radio for information, particularly tuning to CBS but very few read newspapers. The most common information received from fisheries staff was on fishing gear types and sizes but less on business management.

Fisheries management

Most of the beaches had resident or visiting fisheries staff. However, some fishers reported that their beaches were never visited by the staff. The most common information received from staff was on fishing gears, methods and minimum size of fish to be harvested. The least information received was on fish business management.

Majority of the people were not members of any fishermen or traders organization. Some of the stakeholders did not understand the roles of the BMUs. Many of them did not report to be members of the BMUs.

Expenditures of stakeholders

The highest expenditure priorities among the fisheries stakeholders were food, education and health. Contrary to the general belief, the data revealed that leisure and clothing were not considered high priorities among them. Investments were also not a priority, due to insufficiency of the earnings to meet existing needs.

Boat owners and rent-ins

The majority of the boat owners owned one boat each, mostly hand paddled sesse targeting tilapia. Nets and hooks were the most commonly owned fishing gears. The choice of boats and gears was based mainly on skills requirements, costs and risks involved with them.

Fishing crew (*barias*)

Most of the fishing crew worked on ssesse hand propelled boats targeting Nile perch and were paid under a share system. They often changed boats, in search for better earnings, particularly during lean fishing seasons.

Fish processors and traders

Most processors were involved in smoking, for which they owned smoking kilns and targeted Nile perch. Most traders dealt in fresh Nile perch and tilapia, followed by smoked fish. The quantities of fish traded varied significantly between categories of traders and between low and high seasons.

Training received

Very few respondents had ever received training in relation to their business. Those who received did so in the areas of quality control and fish processing.

Recommendations

It is recommended that periodic monitoring of these socio-economic aspects of the fisheries should be undertaken to evaluate the impacts of fisheries management on Lake Victoria.

15. References

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Appendix 1: List of Beaches Surveyed

No.	Beach	District	Category	No. of questionnaires
1	Kigungu	Kalangala	1. NP-O	36
2	Kachanga	Kalangala	1. NP-O	37
3	Kinagaba	Mukono	1. NP-O	42
4	Golofa	Bugiri	1. NP-O	40
5	Kasensero	Rakai	1. NP-O	41
6	Butanira-Lolwe Island	Bugiri	1. NP-O	37
7	Khaza	Mayuge	2. NP-M	41
8	Maduwa	Busia	2. NP-M	34
9	Kalega	Mukono	2. NP-M	39
10	Buwagajjo	Mukono	2. NP-M	41
11	Maala	Mukono	2. NP-M	36
12	Nambula	Mukono	2. NP-M	36
13	Maganda-Sagiti Island	Mayuge	2. NP-M	32
14	Kyagalanyi	Kalangala	2. NP-M	40
15	Kagulube	Wakiso	3. Tilapia	40
16	Nabisukiro	Kalangala	3. Tilapia	41
17	Gunda	Mukono	3. Tilapia	41
18	Katebo-Lwazi	Mpigi	3. Tilapia	36
19	Makonzi	Masaka	3. Tilapia	44
20	Nakiga	Masaka	3. Tilapia	45
21	Nakaziba	Mpigi	3. Tilapia	42
22	Nakiwogo	Wakiso	3. Tilapia	35
23	Wanyange	Jinja	3. Tilapia	24
24	Ntinkalu	Mayuge	4. Dagga	39
25	Ziru-Kibulwe	Mukono	4. Dagga	36
26	Banda	Kalangala	4. Dagga	25
27	Bumeru A	Bugiri	5. Mixed	44
28	Maruba	Bugiri	5. Mixed	40
29	Owen Falls	Jinja	5. Mixed	14
30	Mwena	Kalangala	5. Mixed	39
31	Kiruguma	Mukono	5. Mixed	40
32	Nakirimira	Mayuge	5. Mixed	40
33	Malindi	Mayuge	5. Mixed	38
Total				**1,235**

Appendix 2: Beach Level Questionnaire

This Questionnaire is critical to both an understanding of the beach and to the calculations of the number of stakeholders represented by the main survey of individuals. It is to be completed by the Team Leaders for every beach covered.

Information will be gathered through interviews with key respondents (those best placed to answer the Questions) and their responses should be cross-checked through direct observation and additional interviews. This does not have to filled in with a single respondent: go to whoever is reported to know best.

Name of Beach		
Beach Type	Code	
District		
Date Started	/ /2005	
Date Ended	/ /2005	

Beach Type Code: [1] NP-O [2] NP-M [3] Tilapia [4] Dagaa [5] Mixed

Fisheries related activities

Is there anyone <u>at this beach</u> who is employed for most of their time in repairing or making fishing boats?	Y/N	
If Y, how many people are employed in this way?	No.	
Is there anyone <u>at this beach</u> who is employed for most of their time in repairing or making fishing gear?	Y/N	
If Y, how many people are employed in this way?	No.	
Are there any other people directly employed in supplying the fishing industry (e.g. ice makers etc.…)	Y/N	
If Y, please list:		
	No.	
	No.	

What post-harvest activities take place at this beach or are associated with it nearby?.

	Landed by fishers	Landed by collector boats	Trade in Fresh form	Processing			
				Drying	Smoking	Frying	Salting
Nile perch							
Tilapia							
Dagaa							
Other species							

Numbers of Traders and Processors

How many people make a living at this beach by:

	Processing only	Trading only	Trading and Processing
Nile perch			
Tilapia			
Dagaa			

Seasonal Prices of fish

Only complete for those items regularly traded at this beach.
Give price paid by traders (not local consumers).

	Form	Unit Code or Other	Typical Prices	Highest Prices	Lowest Prices	Kgs per Unit
			Shs/Unit	Shs/Unit	Shs/Unit	
NP	Fresh					
Tilapia	Fresh					
Dagaa	Fresh					
NP	Smoked					
Tilapia	Smoked					
Dagaa	Smoked					
NP	Salted					
NP	Sun dried					
Tilapia	Sun dried					
Dagaa	Sun dried					
Tilapia	Fried					

Unit code: [1] Kg [2] Bags [3] Baskets [4] Whole fish

Boat ownership

What is the largest number of boats owned by anyone at this beach?	No.	
Do they own boats at other beaches as well?	Y/N	

Social facilities

It is important that these questions are answered in relation to the "beach community", i.e. the closest community to the beach.

Location of closest social facilities

Type of social facility	Functioning Code	Location Code	Operator Code
Dispensary			
Clinic			
Hospital			
Primary school			
Secondary school			
Community Hall			

Functioning Code [1] Always [2] Sometimes [3] Never
Location Code [1] Within this village [2] Another village nearby [3] This Location/Ward/Sub-County [4] This District
Operator Code [1] Govt, [2] Voluntary Agency (e.g. mission, NGO) [3] Private for profit

Name of Beach	
Beach Type	Code
District	
Date Started	/ /2005
Date Ended	/ /2005

Beach Type Code: [1] NP-O [2] NP-M [3] Tilapia [4] Dagaa [5] Mixed

Respondents Covered in Survey

Respondent Type	Day 1						Day 2						Total	Target
	TL[1]	E1	E2	E3	E4	Total	TL[1]	E1	E2	E3	E4	Total		
Enumerator Initials														
	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.
Boat owner														10
Crew (Baria)														10
Trader/processor														10
Other														10

[1] Respondent type is defined by response on Baseline Survey Q10 (Which activities are most important to you?)
TL has no specific target for respondents but may choose to undertake interviews, as needed

The TL must try to make sure that the Target number of respondents of each type is reached. The targets for boat owners and crew should be easily reached at most beaches. The TL must make sure, however, that the types of boat owners and crew covered include a majority of those for the beach type: don't go to a dagaa beach and mainly interview those fishing for Nile perch or Tilapia. *If necessary, adjust the timing of the interviews to ensure that you are there at the time when the type of fishers that you want are also there.* This will allow targets to be reached.

The targets for processors and traders will be more difficult at some beaches. The target for Other respondent types (boat and gear makers/repairers and other fisheries related stakeholders) will be the hardest and may not be reached at some beaches. The TL should keep track of what types of respondents are being covered and seek out those that are harder to find.

Issues or Problems arising at beach

Team Leader Name	
Team Leader Signature	
Date	/ /2005

Appendix 3: Socio-economic Baseline Survey Questionnaire

SECTION I - ALL RESPONDENTS

Demographic, occupational, educational and residential status

Q1	Respondent Name			
Q2	Ethnic group (Text)			
Q3	Where were you born?		Code	

Code: [1] Within this village [2] Another village nearby [3] This Location/Ward/Sub-County [4] This District [5] Other District [6] Other Country

	Activities		Is respondent involved?(Y/N)
Q4	Owns or Rents-in a Boat	Y/N	
Q5	Crew member	Y/N	
Q6	Trades or Processes fish	Y/N	
Q7	Other fisheries related activity [specify]	Text	

Q10. Which of these activities is most important to you?	Code	

[1] Boat owner [2] Crew member [3] Fish processor or trader [5] Other

		Sex (M/F)	Marital Status (Code)	Age (Years)	Education Level (Code)
Q11	Respondent (R)				
Q12	If R not Household head, give details of Household Head (HHH)				

Marital code: [1] Single [2] Married [3] Separated [4] Widow/er

Education code : [1] No education [2] Incomplete primary [3] Complete primary [4] Incomplete secondary [5] Completed Secondary [6] Higher

Q13	Relationship of R to HHH	

[1] R is HHH [2] Husband/wife HHH [3] Son [4] Daughter
[5] Brother [6] Sister [7] Other relative [8] Not related

		How many people in your household	How many dependents do you have?		How many are involved in fishing
			Dependent on R (No.)	How many are here (No.)	
Q14	Adult males (18+)				
Q15	Adult females (18+)				
Q16	Male Children				
Q17	Female Children				

Note: "here" means at the place you stay when you are working at the beach

How many of the children in your household have attained the following education level

		Primary								Secondary								
		P1	P2	P3	P4	P5	P6	P7	P8	S1	S2	S3	S4	S5	S6	University	College	Vocational
Q18	Still at school																	
Q19	Left school																	

SECTION I - ALL RESPONDENTS (Continued)

Housing characteristics

Q20	How many houses do you own?	No.	

How would you categorize your house/s?

		Permanent	Semi-permanent	Temporary
Q21	Total number of houses			
Q22	How many are in this village			
Q23	How many are in this location			
Q24	How many in this district			
Q25	How many in other district			
Q26	How many in this country			

Assets owned (land etc.) and their location

Q27	Do you own any land?	Y/N	
Q28	If Yes, what size of land do you own?	Acres	

Rank by area the usage of your land for the following:

Q29	Use for cash crops?		
Q30	Use for food crops?		
Q31	Use for livestock grazing?		
Q32	Used by others?		
Q33	Unused land?		
Q34	Do you have a pond?	Y/N	
Q35	Do you farm fish in this pond?	Y/N	

Do you own any of the following?

S/N	Asset	Number		Asset	Number
Q36	Cattle		Q49	Bicycle	
Q37	Goats & Sheep		Q50	Motor cycle	
Q38	Chicken & Ducks		Q51	Vehicle	
Q39	Pigs				
Q40	Donkeys				

Q41	What do you sleep on at home ?	Code	

[1] Papyrus mat [2] Mattress alone [3] Bed plus Mattress [4] Other

Q42	What do you use for cooking?	Code	

[1] Firewood [2] Charcoal [3] Paraffin [4] Gas [5] Electricity [6] Other

Financial assets

Q43	Do you have a bank account?	Y/N	
Q44	Where is the bank?	Code	

Code: [1] Within this village [2] Another village nearby [3] This L/W/SC [4] This District [5] Other District [6] Other Country

Q45a	Is there a savings scheme operated outside of a bank to which you could have access	Y/N	
Q45b	If Yes, do you belong to it?	Y/N	
Q45c	If Yes, what type of savings scheme is this?	Code	
Q46	If No, would you use such a scheme if it were available	Y/N	

Saving Scheme Code: [1] Run by local people for themselves [2] NGOs [3] Other financing institutions (4) Not applicable

SECTION I - ALL RESPONDENTS (Continued)

Overall livelihood activities

Which income-earning activities in which you are involved makes a contribution to your household?

	Activity	Number of Months in the yr.	Rank of Income
Q47	Fishing income from boats and gear owned		
Q48	Fishing employment (wages and salaries)		
Q49	Fish trading & processing		
Q50	Net making or repairing		
Q51	Boat building and repairing		
Q52	Non-fishing employment (wages and salaries)		
Q53	Trading in other food commodities		
Q54	Trading in non-food items		
Q55	Farming (Crops and Horticulture)		
Q56	Livestock Farming		
Q57	Remittances or Transfer payments		
Q58	Rental income		
Q59	Other		

Note: Only rank those activities which are undertaken by the household

Health status

How many members of your household suffered from the following diseases in the last year:

Q60	Malaria	No.	
Q61	Bilharzia	No.	
Q62	Tuberculosis	No.	
Q63	Convulsions	No.	
Q64	HIV/AIDS	No.	
Q65	Diarrhoea	No.	
Q66	Typhoid	No.	
Q67	Cholera	No.	

Q68	What is the main source of your drinking water for use at home?	Code	

[1] Lake [2] Shallow well [3] Piped/tap [4] Spring/river [5] Rainwater [6] Other

Q69	Do you have a latrine at the house where you stay?	Y/N	
Q70	If No, where do you go?	Code	

[1] Public toilet [2] Neighbour's latrine [3] The lake [4] The bush [5] Other

SECTION I - ALL RESPONDENTS (Continued)

Food consumption

Q71	How often do you and your household get enough to eat?	Code	

[1] Always [2] Most of the time [3] Some of the time [4] Infrequently [5] Never

Q72	What is the usual number of meals eaten in your household in a day?	No.	
Q73	What is your main staple food in your household?	Code	
Q74	What is your second staple food in your household?	Code	

[1]Maize [2] Cassava [3] Rice [4] Sorghum [5] Sweet potatoes [6] Millet [7] Bananas/Matoke

Q75	What is the main sauce in your household?	Code	
Q76	What is the second sauce in your household?	Code	

[1]Chicken [2] Beef [3] Fish [4] Vegetable [5] Beans/Legumes [6] All of the above [7]Other

Q77	What fish do you eat most often?	Code	
Q78	Which fish do you like best?	Code	

[1] Nile perch [2] Tilapia [3] Dagaa [4] Happlochromis [5] Others

Q79	Why do you like this fish best? (last question)	Code	

[1] Fish is easily available [2] Fish is cheap [3] Fish is sweet [4] More nutritious [5] Other

Q80	In what state do you most like to eat fish?	Code	
Q81	What state of fish do you eat most?	Code	

[1] Fresh [2] Smoked [3] Sun-dried [4] Fried [5] Salted [7] Other

Q82a	What is the best reason why you like fish in this state (Last question)	Code	

[1] Fish is easily available [2] Fish is cheap [3] Fish is sweet [4] More nutritious [5] Can be bought in small units(6) Other

Q82b	On how many days do you usually eat fish each week?	No.	

Information, communication, outreach

Q83	Do you own a radio?	Y/N	
Q84	How often do you listen to the Radio?	Code	

[1] Every day [2] Most days each week [3] Occasionally [4] Never

Q85	What time of day do you usually listen to the Radio?	Code	

[1] All day [2] Morning hours [3] Lunch time [4] Afternoon [5] Early evening [6] Late at night

Q86	Which Radio station do you like listening to most?	Text	
Q87	Can you receive this station all the time?	Y/N	
Q88	What language is most used on that Radio station?	Code	

[1] Kiswahili [2] Dholuo [3] English [4] Luhya[5] Luganda [6] Lusoga [7] Other (specify)

Q89	Have you ever heard a programme about fisheries on the radio?	Y/N	
	What time do you prefer to receive information on fisheries on the radio		

[1] All day [2] Morning hours [3] Lunch time [4] Afternoon [5] Early evening [6] Late at night

Q90	Do you own a TV?	Y/N	
Q91	How often do you watch TV?	Code	

[1] Every day [2] Most days each week [3] Occasionally [4] Never

Q92	How often do you read newspapers?	Code	

[1] Every day [2] Most days each week [3] Occasionally [4] Never

Q93	What is the best way of getting information about fisheries to you?	Code	

[1] Brochures [2] Billboards [3] Newspapers [4] Radio [5] TV [6] Meetings/Barazas

SECTION I – ALL RESPONDENTS

Fisheries management

Q94	Do you have a Fisheries Officer at your landing?	Y/N		
Q95	How often is your beach visited by Fisheries Officers in a year ?		code	

[1] [2] Weekly [3] Monthly [4] Quartely [5] Not visited

Q96	Have you ever been provided with information on fisheries?	Y/N	

If Yes, what areas have you received information on:

Q97	Fisheries laws and regulations	Y/N	
Q98	Fishing gears and methods	Y/N	
Q99	Size of fish to be harvested	Y/N	
Q100	Sanitation	Y/N	
Q101	Environmental protection	Y/N	
Q102	BMUs	Y/N	
Q103	Fish handling and processing	Y/N	
Q104	Fish marketing	Y/N	
Q105	Fish business management	Y/N	
Q106	Other (specify)	Y/N	

Q107a	Are you a member of a fishermen's or traders' organization?	Y/N	
Q107b	Is there a BMU at your beach	Y/N	
Q107c	When was it formed?	Year	
Q107d	Are you a member?	Y/N	
Q107e	How many meetings of the BMU Assembly have you attended over the last year?	No.	

How do you support the organization?

Q107f	Attend meetings	Y/N	
Q108	Contribute fish	Y/N	
Q109	Contribute cash	Y/N	

Expenditure

Rank how you use your income from the fishery activities

	Items	**Rank**
Q110	Food	
Q112	Education	
Q113	Clothing	
Q114	Health care	
Q115	Shelter	
Q116	Bank	
Q117	Investment [specify] _____	
Q118	Leisure	
Q119	Other [specify]_____	

SECTION II - BOAT OWNERS (and Rent-in) ONLY

Fishing assets owned

	Boats	Ownership Code	Boat Type Code	Propulsion Type Code	Main Target Species
Q120	Boat 1				
Q121	Boat 2				
Q122	Boat 3				

Ownership Code [1] Owned [2] Rented-in

Boat code: [1] Sesse – Pointed [2] Sesse – Flat [3] Parachute [4] Dugout [5] Raft [6] Other

Propulsion code: [1] Inboard [2] Outboard [3] Paddle [4] Sail

Target Species code: [1] Nile perch [2] Tilapia species [3] Dagaa [4] Other species

Q123	How many other boats do you own?	No.	

	Gears owned (Code)	Total No.
Q124		
Q125		
Q126		
Q127		
Q128		

Gear Code
[1] Gillnets
[2] Long Line
[3] Beach/Boat seine
[4] Cast net
[5] Hook and line
[6] Traps
[7] Lift nets
[8] Small seines
[9] Scoop nets
[10] Others

To what extent is your choice of boats and gears based on the following?

		Code
Q129	Costs	
Q130	Risks	
Q131	Income from fishing	

Q132	Skills required	

[1] Low [2] Medium [3] High

Q133	Do you usually go fishing with your boat?	Y/N	
Q134	Do you use crew (barias)?	Y/N	
Q135	What do you consider as the **most important** factor in choosing your crews/barias?	code	

Crew choice: [1] Skilled at fishing [2] Reliable/trustworthy [3] Relative [4] Other (5) Do not choose

Q136	Who are the main buyers of your fish?	Code	

[1] Consumers [2] Local traders [3] Artisanal processor [4] Factory agents/Industrial processors

Where does R's boat fish throughout the year and what species do they catch?.

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Q136	Location												
Q137	Target Species												

Location: [1] This beach [2] Other beach

Target Species code: [1] Nile perch [2] Tilapia species [3] Dagaa [4] Other species

SECTION III - CREW (BARIAS) ONLY

Barias/Crews only

Q138	What type of boat are you working on at the moment?	Code	

Boat code: [1] Sesse – Pointed [2] Sesse – Flat [3] Parchute [4] Dugout [5] Raft [6] Other

Q139	Does this boat have an outboard engine?	Y/N	
Q140	What type of species have you mainly been catching?	Code	

Target Species code: [1] Nile perch [2] Tilapia species [3] Dagaa [4] Other species

Q141	How long have you been working as a crew member?	Years	
Q142	Is the owner of the boat a relative of yours?	Y/N	
Q143	How long have you been working on this boat?	Months	
Q144	How many other members are there in the crew?	No.	
Q145	How are you paid for your work on this boat?	Code	

[1] Wage (Fixed) [2] Share %

Q146	If wage, how much do you get each week?	Shs	
Q147	If Share %, are fishing costs deducted before the crew gets a share?	Y/N	
Q148	If costs are deducted, what is the % share going to the crew of the money that remains?	%	
Q149	If costs are not deducted, what is the % share going to the crew?	%	
Q150	Is the crew % divided equally between all crew members?	Y/N	

Q151	How often do you get fish to eat in addition as this payment?	No.	

[1] Always [2] Sometimes [3] Never

Q152	Have you worked on any other boat in the last year?	Y/N	
Q153	If Y, how many other boats?	No.	
Q154	How many beaches have you worked on in the last year?	No.	

Q155	Were there any times in the last year you wanted to work but could not get it?	Y/N	
Q156	If Y, how frequently do you have problems with getting work compared to previous years?	Code	

[1] More often than before [2] Same as before [3] Less than before

SECTION IV - FISH TRADERS AND PROCESSORS ONLY

Fish trading/processing

Q157	What do you do?	Code	

[1] Processing only [2] Trading only [3] Processing and trading

Fish processing Sub-section

Q158	Which fish species do you process mostly?	Code	

[1] Nile perch [2] Tilapia [3] Dagaa [4] Other

Q159	What fish product form do you process mostly?	Code	

[1] Fresh [2] Smoked [3] Sun-dried [4] Fried [5] Salted [6] Other

Q160a	Which processing assets do you own?	Code	

[1] Smoking kiln [2] Drying racks [3] Stove (Jiko) [4] Other (specify)

Q160b	If you dry dagaa, where do you dry it?	Code	

[1] Sand [2] Soil [3] Rocks [4] Nets [5] Concrete slab [6] Drying rack [7] Other

Q161	Where do you store your fish?	Code	

[1] In the house [2] Separate store at your home [3] At the beach (4) Other

	What amount of fish you sell each day most of the time?	Units	No. of units
Q162	Nile perch		
Q163	Tilapia		
Q164	Dagaa		
Q165	Others		

Unit code: [1] Kg [2] Bags [3] Baskets [4] Whole fish

	Do you use these materials for processing fish	Y/N	Availability of material
Q166	Wood		
Q167	Salt		
Q168	Oil		
Q169	Other [specify]		

Availability code: [1] Always [2] Most of the time [3] Some of the time [4] Infrequently [5] Never

Fish trading Sub-section

Q170	Which fish species do you deal in mostly?	Code	

Code:[1] Nile perch [2] Tilapia [3] Dagaa [4] Other

Q171	What fish product form do you deal in mostly?	Code	

Code: [1] Fresh [2] Smoked [3] Sun-dried [4] Fried [5] Salted [6] Other

Q172	Who do you buy from?	Code	

Code: [1] Fishermen [2] Other traders [3] Fish agents [4] Other

Q173	To whom do you sell fish?	Code	

Code: [1] Traders [2] Fish Factories [3] Consumers [3] Other

Q174	Where do you sell fish?	Code	

Code: [1] Within this village [2] Another village nearby [3] This L/W/SC [4] This District [5] Other District [6] Other Country

Q175	How far is the market where you sell?	Code	

Code: [1] < 5 Km [2] 6-20 Km [3] 21-50 Km [4] >50 Km

SECTION IV - FISH TRADERS AND PROCESSORS ONLY (Continued)

Q176	With what means do you mostly transport fish to market?	Code	

[1] On foot [2] Own bicycle [3] Hired bicycle [4] Public vehicle [5] Own vehicle [6] Hired truck/ vehicle [7] Donkey [8] Boat [9] Rail [10] Other

How often are the following statements true?

Q177	There aren't enough fish to buy	Code	
Q178	I can't sell all the fish that I have bought	Code	
Q179	I can't afford to buy the fish available	Code	
Q180	I can't get enough ice	Code	

[1] Always [2] Most of the time [3] Some of the time [4] Infrequently [5] Never [6] Not relevant

Indicate the low and high fish trading months

			Start Month	End Month
Q181	High season	Code		
Q182	Low season	Code		

Month Codes: [1] Jan [2] Feb [3] Mar [4] Apr [5] May [6] Jun [7] Jul [8] Aug [9] Sep [10] Oct [11] Nov [12] Dec

Give information on the average quantity of fish you deal on in low (L) and high (H) seasons?

			Low Season			High Season		
			Trips to market per week	Quantity of fish per trip		Trips to market per week	Quantity of fish per trip	
	Fish species Code	Product form Code	No. of trips	Unit Code	No. of units	No. of trips	Unit Code	No. units
Q182								
Q183								
Q184								

Fish species code: [1] Nile perch [2] Tilapia [3] Dagaa [4] Other

Product form code: [1] Fresh [2] Smoked [3] Sun-dried [4] Fried [5] Salted [6] Other
Unit code: [1] Kg [2] Bags [3] Baskets [4] Whole fish

Q185	Have you received training relevant to your business?	Y/N	
Q186	If yes, indicate the most relevant training received	|Code	

[1] Book keeping and accounting [2] Fish processing [3] Quality control
[4] Other [5] None